BRITISH MEDICAL JOURNAL

LONDON SATURDAY JANUARY 31 1942

THE SYNDROME OF PERIODIC SOMNOLENCE AND MORBID HUNGER (KLEINE-LEVIN SYNDROME)

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In W. Kleine's report (1925) upon a series of five cases of periodic somnolence there were two patients in whom bouts of hypersomnia were associated with excessive appetite. Four years later M. Levin (1929) included in a paper entitled "Narcolepsy and Other Varieties of Morbid Somnolence" another case in which symptoms of polyphagia and pathological sleep periodically occurred in combination. In 1936 the same author, having collected seven such cases from the literature and from his own observation, published them as examples of a new syndrome of "periodic somnolence and morbid hunger." This syndrome was considered to occur exclusively in males, starting in the second decade, and to be characterized by attacks of sleepiness lasting several days or weeks, associated with excessive hunger, motor unrest, and various psychological features, notably irritability, mild confusion, incoherent speech, and, at times, hallucinations. Three of the patients developed their initial symptoms soon after an acute illness ("grippe," tonsillitis, influenza). Levin's paper did not attract much notice, as judged by the lack of fresh case records by other physicians. Another of his publications upon this subject (Levin, 1938) did not contain any new clinical material.

We here report two more cases of periodic somnolence and morbid hunger typical of the syndrome described by Kleine and by Levin, with special reference to blood-sugar estimations and, in one case, to the electro-encephalographic findings.

Case I

The patient, an air mechanic aged 20, was admitted to a naval hospital on April 21, 1941. Apart from measles no illness had occurred. The family history revealed no nervous or mental disease.

History of the Illness.—In 1937, after re-vaccination, the patient developed generalized vaccinia, but showed no symptoms suggesting encephalitis. Six months later there started attacks of drowsiness lasting about three days at a time. These recurred every six to nine months, though the interval between the last two attacks was one year. His first attack began just before his midday meal, at a time when he was working at a rather uncongenial job on radio research. He attributed his attacks to overwork, either physical or mental. In his bouts of somnolence he would spend most of his time asleep, though he could be roused quite easily. By dint of physical activity he could manage to keep himself awake. He did not yawn or feel "sleepy," but felt that he must shut his eyes, and then he would drop off to sleep at once. He has slept at work but never at meal-times, and in trains, but has never passed the proper station. He has never fallen asleep standing up. He thought that possibly his attacks were worse in the mornings. So far as he knew his diurnal sleep resembled his ordinary sleep, and he did not dream. During these bouts of sleepiness and while he was actually awake his mind was confused: in his own words: "My mind feels funny; my thoughts are not connected; I know what is happening, but the events do not seem to connect; I am somewhat muddled." Apparently he looks and behaves sensibly in these attacks. He does not complain of physical discomfort and is not troubled with unpleasant thoughts. At night his sleep is normal; there is no delay in getting off to sleep, and there are no hypnagogic hallucinations; nor is there anything to suggest "sleep paralysis" either in the night or on waking. During the whole of his bout of sleepiness his appetite is excessive, but there is no undue thirst. Gradually the attack of sleepiness wears off and he comes round feeling none the worse. In other respects his health is exceptionally good. He is athletic in habits and his weight has remained stationary. There is nothing whatever in his history to suggest attacks of cataplexy, occurring either spontaneously or as a result of emotion or sudden noise.

Those who had the opportunity of seeing him during one of his attacks reported that he became progressively more drowsy over the course of two days. His instructor found him so sleepy in classes that he referred him to the medical officer. While under medical observation he remained asleep almost the whole of the time, waking, however, for meals. He showed no obvious abnormal behaviour, and no delusions or hallucinations. When roused and questioned he appeared well orientated, but slow in cerebration, having difficulty in translating his thoughts into speech. He sometimes walked round the ward half asleep. There was no motor restlessness or agitation. On the day of admission he could give a satisfactory and detailed account of himself, but could not describe the actual thoughts that occurred during his bouts. His temperature remained normal throughout five days in hospital. His last period of hypersomnia lasted altogether about a week.

Physical Examination.—His general appearance was quite normal; the facies did not suggest Parkinsonism, and there was no tremor. No abnormal physical signs were found in the heart, lungs, abdomen, or central nervous system. Blood pressure was 120/75.

Special Examinations.—Urine: acid, specific gravity 1018; no albumin or sugar. Blood Wassermann reaction: negative. Radiographs of the skull showed no abnormality, the pituitary fossa being regular in outline and within normal limits of size and shape. An electro-encephalogram revealed no abnormality while resting, and the alpha rhythm was normal in every respect. Vigorous overbreathing evoked a large intermittent delta dis-

charge involving both frontal lobes, but this was more regular on the left. The blood-sugar curve was: fasting, 71.4 mg. per 100 c.cm.; 1/2 hour after ingestion of glucose, 87.7 mg.; 1 hour after, 108.7 mg.; 1½ hours after, 113.6 mg.; 2 hours after, 82.3 mg. This showed a somewhat low fasting level, but on the whole the curve can be regarded as normal. The patient was given a low carbohydrate diet (80 grammes a day) and was made to do strenuous physical training. No abnormal symptoms developed during this period. An insulin-tolerance test was then carried out according to the technique recommended by Dr. Russell Fraser (1938, 1941), to whom we are indebted for help in this case. A diet of 400 grammes of carbohydrate was given daily for three days, followed by twelve hours' fasting. Seven units of insulin (0.1 unit per kg. body weight) was given intravenously and blood-sugar estimations were made at various intervals thereafter. There was some fall in blood pressure and pulse rate, also slight drowsiness and hunger, but no other abnormal symptoms occurred. The blood-sugar readings showed a normal response to the test. They were: resting level, 95 mg. per 100 c.cm.; twenty minutes after injection of insulin, 43 mg.; at 30 minutes, 43 mg.; at 40 minutes, 62 mg.; at 60 minutes, 62 mg.; at 90 minutes, 82 mg.; at 120 minutes, 96 mg.

Case II

The patient, a man aged 25, was admitted to a naval hospital on July 2, 1941. According to the records, he had been having attacks of sleepiness since 1933. These would occur every few months, and lasted a few days at a time. The patient knew of no precipitating factor and there was no history of any illness shortly before the first of his attacks. Each bout consisted of extreme sleepiness, together with some confusion and a very definite excessive hunger. For about two days after each attack he would be very depressed and oblivious of the events which messmates have commented that he "rambled." So far as he knew, he was not restless or irritable during his attacks, but his messmates have commented that he "rambled.'" So far as he can tell, he showed the normal appearance of one in a state of sleep. There was no alteration in his nocturnal sleep either in an attack or in the intervening periods.

The first of his turns took place in January, 1933, four years before entering the Royal Navy. He was treated at St. Thomas's Hospital for ten days. He came into the Service in February, 1937, and in June of that year entered a naval hospital for a few days in a very sleepy state. No definite diagnosis was made. A rating in his ship declares that he saw the patient in another such attack in barracks in June, 1937, and this was witnessed at that time by a medical officer. There is also some evidence of another bout of hypersomnia in November, 1937. Yet another turn in January, 1938, while abroad, lasted six days and caused him to be sent to hospital, where he was fully investigated. He was readmitted to the hospital on July 8 of that year. The medical officer of his ship had noted that on July 4 he complained of feeling "out-of-sorts" and was constipated. The same evening he became sleepy, and thereafter slept almost continuously. It was stated that when roused he was quite rational but that he quickly lapsed into sleep again.

He was invalided home from the Mediterranean Station on July 23, 1938, and was in an auxiliary hospital from August 8 to September 27, 1938. No drowsiness occurred during his stay there. A lumbar puncture yielded a fluid which was under normal pressure. It contained 3 cells per c.mm. and 30 mg. of protein per 100 c.cm. The Wassermann reaction and Lange's test were both negative.

While an in-patient in July, 1941, a glucose-tolerance test was carried out, with the following result: resting blood sugar, 76 mg. per 100 c.cm.; 1/2 hour after ingestion of glucose, 130 mg.; 1 hour after, 128 mg.; 1½ hours after, 102 mg.; 2 hours after, 72 mg. No glycosuria occurred. He was now put on a diet containing 400 grammes of carbohydrate a day, and after three days he fasted for twelve hours. He was then given an intravenous injection of insulin (0.1 unit per kg. body weight), and blood-sugar estimations were carried out, with the following result: 20 minutes after injection of insulin, 53 mg. per 100 c.cm.; at 30 minutes, 64 mg.; at 45 minutes, 64 mg.; at 75 minutes, 64 mg.; at 105 minutes, 64 mg. No somnolence or any other symptoms developed during this test.

Discussion

Both of these patients conform to the syndrome of periodic somnolence and morbid hunger as described by Kleine, but more especially by Levin. As to the pathogenicity of the condition, Levin is of the opinion that there is a periodic excess of inhibition exerted by the highest cerebral centres in these patients, including those centres controlling gastro-intestinal motility. In support of this view he quotes Fulton (1934), who found that appetite increased after bilateral removal of parts of the frontal lobes in monkeys. Many of these animals died of intussusception, which suggested gastro-intestinal hypermotility. Mettler *et al.* (1936) apparently demonstrated by radiographs similar hypermotility after removal of frontal cortical tissue in cats. Gastro-intestinal hypermotility is considered by Levin to be the cause of increased appetite, and therefore, on the basis of some frontal lesion, the symptom of morbid hunger is explained. By comparison with normal sleep he also attributes the somnolence to loss of function of the highest cerebral centres, which by releasing their control over lower centres produce the "motor unrest" which sometimes occurs in these patients; but it is not clear from his arguments why this motor unrest does not occur in physiological sleep. He quotes cases in which hunger has preceded or followed the ordinary paroxysmal sleep attacks of narcoleptics. He again explains this, in the light of Fulton's work, by assuming that the highest centres do not all undergo inhibition at the same moment, and that the centre for inhibition of gastro-intestinal movements goes into action at a different time from the other higher centres. Similarly, he tries to explain the pre-dormital paralysis of narcoleptics by suggesting that "the motility substrate has undergone inhibition in advance of the substrate of consciousness." Believing that the lesion producing morbid hunger is situated in the frontal lobes, Levin cites as additional evidence the case of an epileptic woman who was extremely hungry in her post-epileptic stupor. Preceding her fits, this woman had an aura of a "light-headed" feeling in the forehead. Levin remarks that "the significant thing is that the aura was felt in the forehead. It is possible that the sensation was referred from centres in the frontal lobes." Speculation of this kind is of course without scientific justification.

From a study of our own cases we can form no definite conclusion as to the morbid anatomy and physiology of the Kleine - Levin syndrome. Despite the electro-encephalographic findings in Case I, the suggestion of a frontal lobe dysfunction is by no means convincing, and it is far more tempting to visualize a patho-physiological process within or near the hypothalamus. We were unfortunate in not seeing the patients during their actual attacks, when blood-sugar and electro-encephalographic studies might have produced more helpful data.

The possibility of hyperinsulinism due to primary pancreatic overactivity can be dismissed, as none of the criteria laid down by Wilder (1940) for the diagnosis of this condition were fulfilled. These criteria are: (1) a post-absorptive blood sugar of less than 50 mg. per 100 c.cm.; (2) symptomatic attacks of hypoglycaemia occurring only when the patient is fasting; and (3) relief of such attacks by the administration of sugar. Although Wilder (p. 362) does not place much reliance on the glucose-tolerance and insulin-tolerance tests in hyperinsulinism, Fraser, who saw the charts of these tests in our first case, expressed the opinion that the results were strong evidence against hypoglycaemia being responsible. Moreover, apart from drowsiness and hunger, there were no other symptoms of hypoglycaemia in our patients.

Although it is idle to speculate without the evidence of blood-sugar estimations carried out in an actual attack, it is unlikely that a cerebral lesion—of the hypothalamus, for example—had caused temporary hypoglycaemia in these cases. Such a lesion, if it were to produce hypoglycaemia, would almost certainly also produce intolerance to insulin, which was not present in our cases. Confirmation of this statement is obtained from a study of the work of Cleveland and Davis (1936), who found insulin intolerance in 12 out of 14 cats with artificially produced hypothalamic lesions.

From those cases in which the syndrome of periodic somnolence and morbid hunger is preceded by an acute infection it is tempting to suggest that some form of mild encephalitis occurs which causes instability of the higher cerebral centres. The syndrome, however, does not appear to be related in any way to epidemic encephalitis. Narcolepsy—a much commoner cause of pathological sleep—differs from the present syndrome in many important features: (1) the attacks of sleep are shorter and more frequent, being paroxysmal rather than periodic; (2) excessive hunger does not typically occur; (3) cataplexy is a characteristic concomitant; and (4) disordered nocturnal sleep is usually present. It is not clear whether the hallucinations described in the Kleine-Levin syndrome are similar to the hypnagogic hallucinations of narcolepsy.

The result of electro-encephalography in Case I cannot be taken as conclusive evidence that a frontal lesion is responsible for the symptoms. (So far as we know, this is the only patient with the disorder to be examined by this means.) If subsequent cases also produce similar results this will be of considerable interest. The result obtained was similar to those found in cases of epilepsy or in patients with an epileptic predisposition who have never had fits. A finding of this sort probably indicates the existence of a cerebral dysrhythmia and nothing more.

Summary and Conclusions

The syndrome of periodic somnolence and morbid hunger is described, with special reference to the work of Levin.

Two cases are reported which have recently been observed in Royal Naval hospitals, in one of which there was an abnormal electro-encephalographic reading.

These cases, in our opinion, give strong evidence that such a syndrome exists as a definite entity.

Levin's views as to the cause of the syndrome are discussed, but it is considered that the nature of the pathological process is still obscure.

The differential diagnosis is considered with special reference to hypoglycaemia.

For permission to quote these two cases we are indebted to the Surgeon Rear-Admirals at the naval hospitals concerned.

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T. Brander (*Nordisk Med.*, 1941, **8**, 2547) records two fatal cases of varicella in children aged 2 months and 1 year respectively, who developed the eruption during convalescence from double pneumonia and were living under unfavourable sanitary conditions. One had a scarlatiniform eruption at the onset of the disease and the other had haemorrhages in the pocks. The varicellar lesions soon became necrotic and the subjacent muscle was invaded. Death from septicaemia ensued on the twenty-fifth and seventh days of disease respectively.

HEAVY PERCAINE SPINAL ANAESTHESIA

EXPERIENCE GAINED IN A SERIES OF 420 CASES

BY

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Hypobaric, or light, solutions for spinal anaesthesia are losing their erstwhile popularity. Such techniques as those of Howard Jones (1930), Etherington Wilson (1935), and Lake (1938), though excellent in expert hands, are complex, and failure easily results if details are neglected. To-day, heavy, or hyperbaric, solutions are being increasingly used, by virtue of their simplicity of technique, constancy of result, and safety.

This paper records the experience gained in a personal series of 420 cases over a period of three and a half years, in which heavy percaine (1 in 200, in 6% glucose) was used, with no deaths and few complications. The technique evolved, though based on that described by Silverton (1934), differs from it in certain respects. The greater part of this work was carried out at the Seamen's Hospital, where the patients were men of excellent physique in whom the production of muscular relaxation by the use of general anaesthesia would have been a problem. It is one of my purposes to point out that it is particularly in such "good risk" cases that spinal anaesthesia produces its most gratifying results.

Behaviour of Heavy Solutions in the Subarachnoid Space

Solutions heavier than cerebrospinal fluid reaching the cephalic side of the lumbo-sacral projection tend, in the supine patient, to gravitate towards the mid-thoracic region. The number of nerve segments affected when a small volume of solution is introduced (1 to 2 c.cm.) depends chiefly on the quantity of drug, because as the solution moves towards the upper dorsal region the drug is being removed from the C.S.F. by both the nerve roots and the blood stream. In any case, it will not travel further than the lowest part of the dorsal curve unless there is still unabsorbed drug left at this point and the patient is steeply tilted head down. Thus sensory loss tends to stop automatically at about the level of D 6 to D 7 (ensiform), with motor loss one or two segments below this because posterior root effect is predominant when the solution stays in the dependent part of the thecal space. Thus two safety factors are inherent in the use of heavy solutions: the dorsal curve, limiting upward spread in the supine patient, and gravity, which limits anterior root involvement, with consequent less intercostal and sympathetic paralysis. If the patient is sitting up, a heavy solution sinks to the lowest part of the thecal sac, affecting the sacral roots only. There are thus two levels of anaesthesia, which automatically adjust themselves: one to the ensiform, suitable for lower abdominal surgery; the other to the "saddle" area, suitable for perineal operations.

Objections to Heavy Solutions Answered

Objections (e.g., Lake, 1938) to heavy solutions have been the "lack of control," and the danger of using the Trendelenburg position early in the operation.

"*Lack of Control.*"—This suggests that the anaesthesia may ascend too high; but the difficulty I have experienced with heavy percaine has been to get the solution to ascend higher than D 6 to D 8 by gravity alone. For upper abdominal anaesthesia it has had to be supplemented with barbotage (or mixing with C.S.F.). The only control between the limits of

the sacral area and the ensiform which I have found desirable has been to restrict the anaesthesia to the legs. The lower half of the body can be divided into four zones, and anaesthesia limited to each: (*a*) the upper and lower abdomen, D 5 to L 3; (*b*) the lower abdomen, D 7 to L 3; (*c*) the legs, L 1 to S 2; and (*d*) the perineum, S 1 to S 3. No more control than this has been found desirable, and no more is possible with hypobaric solutions, with the exception of the Wilson time-diffusion method.

The Trendelenburg Position Early in the Operation.—The myth of medullary paralysis has been dispelled by Sebrechts (1934). The real danger of cephalic spread is phrenic palsy superadded to a progressive intercostal paralysis. It is admittedly difficult to disprove the objection to the Trendelenburg position early in the operation. It has been shown (Koster *et al.*, 1936; Hirschfelder and Bieter, 1932) that in the time taken to prepare the patient for the surgeon (ten minutes) the concentration of novocain (in heavy solution) in the C.S.F. has been so reduced by absorption into the blood stream (which Howard Jones said is only less rapid than intravenous injection) and by nerve-root fixation that no alteration in motor loss and very little in sensory loss can be obtained after this time. Observations made in this series on the development and extent of anaesthesia in relation to time have led me to conclude that heavy percaine behaves in a similar manner. In common with Macintosh (personal communication), Evans (1941), and others, I have on numerous occasions in this series placed patients in a slight head-down tilt for abdominal anaesthesia with no ill effect. That no harm results from this depends on the correct dose being used, so that most of the percaine is removed from the C.S.F. before it reaches the upper dorsal region.

Solution Used

The solution employed in this series was 1 in 200 percaine in 6% glucose, and is very nearly isotonic. Its specific gravity is 1024, compared with 1007 for C.S.F., and it is thus strongly hyperbaric. Percaine is now well known as a powerful drug whose action is long-lasting (two to three hours). This solution of percaine, first described by Silverton (1934) and recently by Frankis Evans (1941), enables the drug to be used according to the simple, well-tried, and proved principles of gravity control laid down by Barker (1907).

As with any form of spinal anaesthesia, safety in this series was ensured by attention to the following points: (1) pre-operative preparation and medication; (2) avoidance of this form of nerve block in certain patients; (3) a careful and constant technique; (4) constant vigilance in the theatre, so that possible complications may be forestalled; and (5) post-operative treatment.

Pre-operative and post-operative treatment are now so well known that only a few personal comments will be made. The technique in the theatre will be described in detail.

1. Pre-operative Treatment

It is a good maxim that "the twenty-four hours before an operation is not the best time to alter the habits of a lifetime." At the preliminary visit no mention is made of spinal anaesthesia, as the public generally is not sufficiently educated in this matter and ignorance may engender fear. The usual pre-operative medication for adults is omnopon grain 1/3 and scopolamine grain 1/150, the amount being reduced proportionately for the young and the aged. The confident patient needs no more than this, and by avoiding larger doses of respiratory depressants (among other things) I have been rewarded by few pulmonary complications.

2. Contraindications to Spinal Anaesthesia

I regard spinal anaesthesia essentially as expedient for those who are good risks for any form of anaesthesia. The more robust the patient the more suitable he is for spinal anaesthesia. It is never used for ill, debilitated, or shocked patients. Some other form of regional block, or inhalation anaesthesia, is chosen for these. For major surgery below the umbilicus in "good risk" subjects I regard spinal anaesthesia as the method of choice, general anaesthesia being used only when spinal anaesthesia cannot, rather than the reverse. A number of patients, however, express a wish—always respected—to be asleep during the operation. If no great muscular relaxation is desired by the surgeon, inhalation or intravenous anaesthesia is used; but if relaxation is an essential requirement, then spinal anaesthesia is induced after the patient has been put to sleep. Whenever supplementary general anaesthesia was required in this series cyclopropane was employed. This gas is particularly suitable for the purpose, since a mixture rich in oxygen is given, and the closed circuit, with CO_2 absorption, reduces the respiratory excursions.

3. Technique

(A) Vasopressor Drug

A vasopressor is used to help maintain a good coronary circulation rather than a good medullary blood supply. The latter is taken care of by the adoption, if necessary, of the Trendelenburg position. No vasopressor is needed when the anaesthesia is below the mid-lumbar region, as no vasomotor sympathetic fibres are given off lower than this level. Though employment of ephedrine is a standard current practice in spinal anaesthesia, a mass of evidence has accumulated which indicates that it may be, and often is, harmful. I propose to discuss this fully in another paper, and will merely say here that I have not used it for the past three years, but have substituted phedracin (Ciba 2020) (Jones and Wilson, 1938), a synthetic, peripherally acting, sympathetic stimulant, whose main difference from ephedrine is that it does not produce tachycardia. Like all vasopressors it only helps to counteract the fall of blood pressure, and faith should be placed in the Trendelenburg position rather than in drugs. In the greater part of this series, patients received 0.2 gramme of phedracin intramuscularly, just before the lumbar puncture, if the spinal anaesthesia was to extend above the mid-lumbar region. A few minutes after the administration of phedracin the patient usually shows marked "goose-skin" and often feels shivery. Since this drug has been used in this series and in spinal anaesthesias by other methods, no case of collapse has occurred and nausea has become a rarity. The patients keep a good colour. Phedracin has been repeated during the operation in a dosage of 0.1 gramme intravenously in a case in which a rapid effect was desired, and, unlike ephedrine, its effect was almost as great as that of the initial dose.

(B) Lumbar Puncture

Position of Patient.—For perineal anaesthesia, lumbar puncture is performed with the patient sitting up, with knees flexed and hands clasping ankles, aptly described by Maxson (1938) as the "sitting bull" position; otherwise the puncture is always performed with the patient on his side. If the incision is unilateral, as it so often is—e.g., herniotomy, appendicectomy, leg operation—the patient lies on the affected side, so that the most intense anaesthesia is in that part. The following three instructions to the patient, given in this order, have been found useful in positioning him quickly and without fuss—e.g., for a left-sided operation: (i) "Lie on your left side with hip and shoulder along the back edge of the table"; (ii) "Bend your knees so that your thighs touch your abdomen"; (iii) "Tuck your head down towards your knees."

Skin Puncture.—The third lumbar interspace is always chosen, but if this is difficult the one above is used. No local anaesthetic is necessary if a sharp primary-puncture

needle is employed and hair follicles are avoided. The puncture needle makes a small triangular hole for the spinal needle and obviates strain or bending of the latter.

Spinal Needle.—My own choice is the Pitkin or Pannett needle (22 S.W.G.). Two needles, 3 in. and 3¾ in., are always ready on the tray, the latter for fat or muscular people. Loss of C.S.F. is scrupulously avoided throughout the procedure. The method by which the spinal needle is held and inserted, avoiding both damage and contamination of the shaft, is as follows. The anaesthetist bends his body so that his shoulders are parallel with those of the patient and he is looking towards the patient's head. The needle is held with the hilt between the thumb and first fingers of each hand, the little fingers resting on the patient's back. By this means the needle can be aimed accurately and the slightest deviation from its mid-line course can be detected. No strain is put on the needle, and its shaft is never touched with the fingers.

Injection of Percaine.—It is important that the syringes and needles be sterilized by boiling in distilled water to avoid precipitation of the percaine, which occurs in the presence of alkali. If the solution becomes cloudy in the syringe it should be discarded. The syringe is emptied

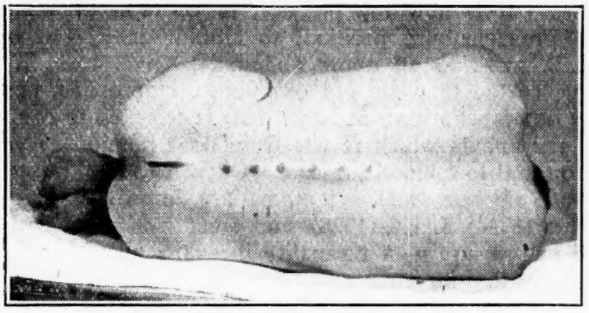

FIG. 1.—Showing how table may have to be tilted to produce a horizontal spine when the patient has broad shoulders.

at such a rate that the dose is injected in about fifteen seconds (i.e., a little slower than a hypodermic injection). A few drops of C.S.F. are always aspirated at the start to be quite certain that the needle is well in the subarachnoid space. Unless this certainty is always present before injection failures will occur. Air bubbles in the syringe are scrupulously avoided and are never injected into the C.S.F. When all the solution has been injected the needle, with the syringe attached, is left *in situ* for about half a minute to allow the local increase in pressure to subside and thus avoid leakage of percaine at the dural puncture.

Inclination of Spinal Column during Injection.—The inclination of the spinal column rather than of the table influences the flow of the percaine solution. It is obvious that a patient with broad shoulders and narrow hips lying on his side may have a horizontal spinal column although the table is tilted head down (see Fig. 1). During the injection the line of spines between the point of injection and the lower thoracic region is kept horizontal for lumbar anaesthesia (i.e., the legs), but with a slight head-down tilt for abdominal anaesthesia.

Dosage.—After experiment, using Silverton's figures as a basis, the following dosage was arrived at. (These doses should be regarded as maximal, and with experience can be reduced according to the size and condition of the patient.) (1) Perineal or saddle anaesthesia, 1 c.cm.; (2) anaesthesia of the legs (to L 1), 1.5 c.cm.; (3) anaesthesia of the lower abdomen, 1.8 c.cm.; (4) anaesthesia to the nipples, 2 c.cm. and 1 c.cm. of barbotage.

Posture after Injection of Percaine.—The technique we adopt with regard to posture after injection is as follows:

Perineal Anaesthesia.—The patient is kept sitting up for three to five minutes, so that the heavy solution gravitates to the sacral theca. At the end of this time he is allowed to recline with his head and shoulders elevated. The anaesthesia is sharply limited to the "saddle area" (S1-2 down), with tingling or numbness of the soles of the feet, and the field of anaesthesia is adequate for

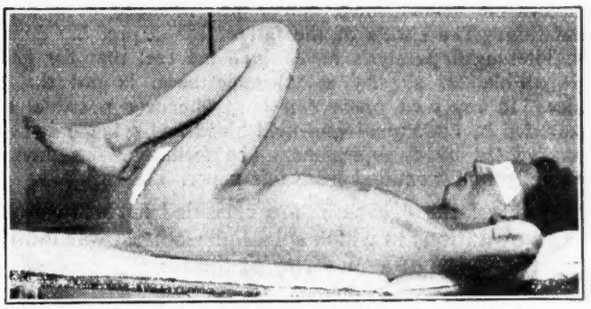

FIG. 2.—Position of patient for production of abdominal anaesthesia: flexion of thighs, producing straight lumbar spine.

perineal and ano-rectal operations. As Frankis Evans has rightly pointed out, the nursing staff should be warned of this to avoid burning the soles of the feet with hot-water bottles. No fall of blood pressure or untoward symptoms of any sort have been observed in these cases.

Legs.—For unilateral operations the patient is kept on his affected side for three to five minutes with the spine horizontal. The solution spreads over several segments on both sides of the site of injection. If the spine is not kept quite horizontal either the upper lumbar or the lower sacral nerves may escape and the area of anaesthesia be insufficient. It must be admitted that the production of complete anaesthesia of both lower limbs proved the greatest problem with this heavy solution of percaine. After much experiment and many failures it was found that bilateral anaesthesia from L1 down was inconstant unless 0.5 c.cm. of barbotage with C.S.F. was given. The patient is immediately turned on to his back after the injection, with the table horizontal and his thighs flexed on to his abdomen to produce a straight lumbar spine. This position is maintained for three to five minutes or until the legs waver or fall.

Lower Abdomen.—For unilateral operations such as herniotomy the spine is kept tilted after the injection in a slightly head-down position (about 5 degrees) and the patient remains on the affected side for three to five minutes. He is then turned on his back, and if the anaesthesia is adequate the table is levelled. If the anaesthesia has not yet reached the umbilicus the table is left in a 5-degree Trendelenburg position, and the anaesthesia will surely be complete in a few minutes. When the operation is inside the lower abdomen the patient is turned on to his back immediately after the injection and the table kept tilted in a 5-degree Trendelenburg position. The patient flexes his thighs on to his abdomen and keeps like this for three to five minutes or until his legs fall of their own accord (see Fig. 2). The table is left with this tilt, and the sensory loss will be found to ascend gradually to about the ensiform and no higher, as already explained. In about half the patients undergoing hernia and lower abdominal operations the anaesthesia was found to extend no lower than the knees or even mid-thigh, and such a typical distribution is shown in Fig. 3. These patients were able to move their feet and ankles and often their knees, and had varying degrees of sensation in the legs, from numbness to fully normal. This localized effect has in fact made me regard heavy percaine as unsuitable for operations which involve both the perineum, or legs, and the abdomen. Sensation and movement in the legs, therefore, should not be taken as an indication of failure. I regard this phenomenon as one of the best

FIG. 3.—Showing a typical segmental distribution of anaesthesia for a lower abdominal operation (D 7 - L 3).

features of this solution of percaine, as the absence of muscular and vasomotor paralysis in the legs cannot but be beneficial to the patient. Those who could move their legs were invariably of good colour and had no untoward symptoms throughout the operation.

Upper Abdomen.—Although upper abdominal anaesthesia was produced in 37 patients in this series, this was done to complete the investigation, and is not intended as a recommendation. The effects of the fall of blood pressure and the high intercostal paralysis have made me feel that for gastric and gall-bladder surgery spinal anaesthesia is not the best choice. In my own practice it has, whenever possible, been superseded by abdominal wall field block and splanchnic block, supplemented by cyclopropane. The technique has therefore been deliberately omitted from this paper.

In Table I the 420 cases are classified according to the various operations in which spinal anaesthesia was induced. Table II consists of a summary of the technique employed.

TABLE I.—*Classification of Cases*

Operations :		Operations :	
Herniotomy	192	Fractured femur plating or manipulation	5
Haemorrhoidectomy	83	Caecostomy	2
Cystoscopy	21	Stone in ureter	2
Suprapubic prostatectomy	30	Excision of head of femur	1
Appendicectomy	29	Anaesthesia :	
Gall-bladder operations	18	Lower abdominal	265
Colostomy	12	Sacral	104
Gastric operations	10	Upper abdominal	37
Amputation through thigh	8	Lumbo-sacral	14
Nephrectomy	7		

TABLE II.—*Summary of Technique*

Zone of Anaesthesia	Posture for Injection	Dose	Posture after Injection
Perineal	Sitting up	1 c.cm.	Sit 5 minutes, then recline with head and shoulders raised
Legs (lumbo-sacral)	On affected side	1·5 c.cm.	Unilateral : Remain on side, with lumbar spine horizontal, for 3 to 5 minutes. Then on back, with table horizontal Bilateral : On back, with thighs flexed and table horizontal
Lower abdomen	,, ,, ,,	1·8 c.cm.	On back, with thighs flexed. Table 5 degrees Trendelenburg
Upper abdomen	,, ,, ,,	2 c.cm. + 1 c.cm. barbotage	On back, with thighs flexed. Table 10 degrees Trendelenburg ; 5 degrees when anaesthesia adequate

Testing the Anaesthesia.—The manner of testing the anaesthesia is important. Until this moment is over the word "spinal" is not mentioned in the patient's hearing. He has only been told that he is to have an injection in his back as part of the preparation for the operation. Only when the anaesthesia has developed and is satisfactory is it explained to him that the part to be operated on has been made numb and that he will feel no pain. Most important of all, he is told that the anaesthetist will stay with him and devote his entire attention to his needs. Not until the end of five minutes after injection, by which time the solution will have gravitated to the required level, is the anaesthesia tested with towel forceps. Without the patient being aware of what is being done, his face is watched for the screwing up or the frown that means pain. Only one piece of skin is pinched at a definite spot for each zone. In the case of lumbar anaesthesia it is permissible to ask the patient if his legs are feeling warm—the first symptom to appear. Very soon afterwards tingling is felt, and it is then certain that satisfactory anaesthesia will develop. Flexion of the thighs in the production of abdominal anaesthesia has the effect of straightening the lumbar spine (see Fig. 2) and preventing the accumulation of percaine on the sacral side of the lumbo-sacral projection. Admirable diagrams showing the effect of this curve in splitting the dose of a hyperbaric solution when flexion is not done have been given by Vehrs (1935). In this series I have taken, and recommend whole-heartedly, his advice to use, whenever possible, the lateral position to determine the height of anaesthesia, since in this position the variable factors of the spinal curves are eliminated.

4. Constant Vigilance in Theatre

Once anaesthesia has developed, the anaesthetist maintains an unbroken vigilance for the signs that betoken the onset of the rare complications of a harmful fall in blood pressure or of cardio-respiratory failure. Blood-pressure readings are not taken on conscious patients, and, even with those asleep with cyclopropane, clinical observation is considered the more reliable guide. Changes of posture, if necessary at any time during the patient's stay in the theatre, are made very gradually, and the literature abounds with stories of collapse occurring when the patient was quickly tilted or turned. *Fall of blood pressure* is denoted by a gradual onset of pallor and, when phedracin is used, coincident slowing of the pulse. This does not cause alarm so long as the normal pulse/B.P. ratio is maintained. The patient complains of nausea or may retch. Only when the pulse rate begins to rise, and particularly when it approaches or exceeds the systolic blood pressure, is concern felt. If definite signs of falling blood pressure are present, or, if it is being recorded, when it falls below 100 mm., the table is tilted about 10 degrees head down. It is now my practice, in addition to adopting the Trendelenburg position, to administer oxygen by a B.L.B. mask to all upper abdominal spinal cases if for some reason they are not receiving cyclopropane, and to any others who have nausea. This is designed to counteract the anoxia which results from poor pulmonary ventilation and low blood pressure. Oxygen usually raises the blood pressure, and symptoms are improved. Koster, Vehrs (1934), Labat (1928), and other workers regard the fall in pressure as a normality in spinal anaesthesia, and consider that no harm ever results from this alone so long as a head-down tilt is maintained. By this means an adequate supply of blood to the medulla is ensured by gravity, and filling of the heart is helped. In addition to the use of the head-down position and of oxygen, which is the main line of treatment, 0.1 gramme of phedracin is given hypodermically or, with caution, intravenously. Seevers and Waters (1932) showed that a great factor in the production of the falling blood pressure was the intercostal paralysis with which it runs parallel. Large doses of respiratory depressants like morphine and the barbiturates are avoided before spinal anaesthesias which are to involve the thoracic nerves. The Trendelenburg position tends to raise the blood pressure but cannot affect the respiratory volume as the thorax is already immobilized (Lewis and Palser, 1938).

Nausea and vomiting were the most frequently observed complications in the theatre. In this series nausea occurred in 12 (2.8%) cases, but was transient in all instances and soon passed when the patient was tilted head down: all these attacks came on about fifteen to twenty minutes after the injection. Nausea may be due to a combination of one or more factors such as fear, the fall of blood pressure, the effect of percaine on the vomiting centre via the blood stream (Howard Jones, 1932 ; CoTui, 1934), anoxaemia, and traction on viscera whose nerve supply has not been blocked, such as the stomach when anaesthesia extends to the xiphisternum (Youngblood, 1939). Fortunately, retching appears to have a stimulating effect, and patients are usually brighter and better after it. Retching occurred in 5 cases (1%), and in one in which it did not stop quickly an intravenous injection of 0.05 gramme of phedracin brought about an immediate cessation.

Collapse occurred in only one of our cases, and was due to sudden change of posture at the end of a long operation. A steep Trendelenburg position and oxygen under

pressure promoted rapid recovery. Respiratory failure due to phrenic palsy was not seen, and in fact had not occurred in my experience with spinal anaesthesia. Phrenic involvement or collapse with respiratory arrest indicates immediate artificial respiration. If means of oxygen inflation of the lungs is not to hand I would recommend a method of artificial respiration, now fallen into disuse, which I have often successfully employed in general anaesthesia. This is mouth-to-mouth respiration via an ordinary face-piece with a gauze swab as filter.

5. Post-operative Treatment

Towards the end of the operation the following instructions are given to the patient, if he is awake, as well as explained to his nurse: "During the next twenty-four hours you should drink as much as you can [this if the operation permits], you must not lift your head from your pillow, and you must not smoke or read." I have been led to the conclusion that blocking the foot of the bed is not of such importance in preventing headache as using a fine needle, rigid asepsis, and avoiding loss of C.S.F. In those patients in whom the development of a post-operative pulmonary complication is likely because of the operation or pre-existing disease, the bed is never blocked, and the patient is sat up as soon as possible. It is our observation that such patients rarely complain of headache, and a typical severe "spinal" headache has not occurred in them in my experience. The average patient has 6-inch blocks under the foot of the bed for six hours, and then is allowed one small pillow, but he does not raise his head for twenty-four hours. Abstention from smoking during the first few days removes what may be the cause of a post-operative bronchitis. A high fluid intake attempts to maintain a hydraemia and helps in the prevention of headache. Food is allowed when the patient feels the need for it, as this is a sure guide to alimentary function.

Post-operative Complications

In spite of the care taken over lumbar puncture 30 (7.1%) patients complained of headache (Table III) when asked, but without a leading question many headaches would have gone unrecorded. Headaches after spinal anaesthesia have always received more prominence than those after general anaesthesia. But Baird (1932) found that, following abdominal operations, headaches occurred with the same frequency after both forms of anaesthesia, while with perineal operations 13% had headaches after general compared with 2% after spinal anaesthesia. Of the 30 patients with headache, 26 received no treatment other than aspirin, their cases being characterized by mildness, low diastolic pressure, and an increased intensity when the head was raised. The remaining 4 were more severe. In 2 of these 0.5 c.cm. of pituitrin cured the headache rapidly. The third had 20 c.cm. of 20% glucose intravenously and 0.5 c.cm. of pituitrin (repeated once), and the headache gradually passed off in two days. The fourth had a particularly intense headache, relieved on sitting up. Lumbar puncture revealed C.S.F. under pressure, withdrawal of which cured the headache.

TABLE III.—*Complications*

	Upper Abdominal	Lower Abdominal	Lumbo-sacral	Sacral	Total
Headache	1	8	1	—	30 (7·1%)
Nausea in theatre ..	8	4	—	—	12 (2·8%)
Vomiting „ ..	3	2	—	—	5 (1·1%)
Chests :					
(i) Mild cough	1	8	1	—	10 (2·4%)
(ii) Collapse of base ..	2	—	—	—	2 (0·5%)
Acute retention of urine	—	1	2	2	5 (1·1%)
Residual areas of anaesthesia ..	—	3	2	4	9 (2·1%)
Collapse in theatre	1	—	—	—	1 (0·2%)

Pulmonary Complications.—After long and extensive abdominal operations patients are sat up and encouraged to perform previously learned breathing exercises. This is also done in any other cases in which it is thought likely that lung complications might ensue. Ten cases (2.4%) developed a mild bronchitis, but in 7 of these, all hernias, a "slight cough" was present before the operation. Two cases in addition developed basal collapse, one after a difficult gastrectomy, and the other after cholecystectomy. The possibility of post-spinal headache has never been allowed to influence prophylactic treatment of lung complications.

Acute Retention of Urine.—This complication, so often seen when stovaine is used, occurred in only 5 cases. All responded to an injection of doryl. From experience gained with stovaine, doryl is given as soon as retention is diagnosed, without trying other measures. In view of the rarity of the complication in this series, it is interesting to note that ephedrine can cause acute retention (Balyeat and Rinkel, 1932; Valentine and Fitzgerald, 1935).

Residual Patches of Anaesthesia.—In 9 patients (2.1%) small scattered areas of numbness persisted in the legs, feet, or perineum for varying periods, but all disappeared by the end of two weeks. This phenomenon was elicited only by careful questioning and examination, and would otherwise have passed undetected.

Late Results.—So far as I am aware there were no late effects due to the spinal anaesthesia. The patients were not followed up, from the anaesthetist's point of view, after leaving hospital, but a great many appeared in the surgical follow-up departments, where any after-effects due to the spinal anaesthesia would have been reported. During the time that the above series was being collected other spinal anaesthesias were being induced both with light percaine and with novocain. The expert spinal anaesthetist should include many different methods in his armamentarium so that he may choose an agent and a technique suitable for a particular case. In my opinion, for reliable all-round use, with freedom from anxiety and major complications, heavy percaine employed in the way described above has proved the most useful.

Summary

A series of 420 cases in which spinal anaesthesia was induced with heavy, or hyperbaric, percaine (1 in 200, in 6% glucose) forms the basis of this paper.

The technique is simple, safe within the given doses, and the results constant. Few complications occurred and no deaths.

Selection of patients is important, and the method is particularly indicated for "good risk" cases and for such operations as haemorrhoidectomy and herniotomy.

I owe thanks to Mr. Percival P. Cole, senior surgeon at the Seamen's Hospital, for encouragement and patience during this study, and to Prof. R. R. Macintosh and Mr. S. M. Cohen for helpful suggestions.

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SUDDEN COMPRESSION INJURIES OF THE ABDOMEN AT SEA

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In contrast to the extensive literature on blast injuries of the lung, reports on the effect of sudden compression of the abdomen are few and brief. It has been recognized in this, as it was in the last war, that compression or suction waves set up by the detonation of high explosives on land or at sea cause, among other lesions, bleeding into the lungs and abdominal viscera. Atkins (1940) describes the cases of three patients, injured by depth-charge explosions while they were swimming, who came under his care suffering from peritonitis after the Dunkirk evacuation. All were operated upon: one had a perforation of the ileum three inches above the caecum; the second had a similar lesion in the first part of the ascending colon; while the third showed multiple petechial haemorrhages with oedema in the walls of the intestines but no perforation. The third of these died, but the first two, after suture of the perforations, survived. Atkins says that prognosis in these injuries is usually bad because of associated lacerations of the brain and lungs. Gordon-Taylor (1940) has noted bowel rupture without breach of the skin in shipwrecked men injured by depth-charge detonations. He believes that organisms permeating a contused colon may be the cause of an abscess or even a faecal fistula. Below we record two such abscesses, one pelvic and the other subphrenic, which may have been due to this cause. Gordon-Taylor also describes a group of patients who suffered from severe melaena but recovered without serious complications. We record the cases of seven such patients who developed varying degrees of haematemesis and who all recovered. Wakeley (1941) also has noted compression injuries in sailors.

Clinical Features

The case histories fall into three groups: (A) obvious abdominal injuries that recover completely without operation; (B) severe injuries, such as lacerations, disclosed at operation; and (C) late complications, such as abscess formation.

It is clear that immediate fatalities are numerous, but we have no data regarding these. This report deals with survivors from a convoy attacked by submarines, and all were rescued by small ships, in which immediate operations such as laparotomy were not possible. We have nothing new to add to the well-known principles which enable the surgeon to decide whether he should operate or not in recent abdominal injuries. The happy fact is that, out of ten survivors seen, nine recovered without immediate operations, though grave symptoms such as shock, haematemesis, melaena, and pyrexia were present in most.

Group A

Haematemesis; Melaena; Abdominal Pain; Complete Recovery in Seven Patients

The clinical features were so similar in all the cases of this group that the description of only one case is given.

Case 1.—The patient, an Allied naval officer aged 27, was swimming in the sea after his ship had been torpedoed, when depth charges from the sinking vessel, which was thirty yards away, detonated on sliding into the water. He felt a "sudden electric shock," but did not lose consciousness, and reached a raft. He was rescued by a small naval ship and walked to a cabin unaided. Within an hour of the explosion he vomited a good deal of blood and developed hiccup and much abdominal pain. When examined by a surgeon lieutenant who had been put on board, the lower abdomen was found to be rigid and tender. The patient was treated with morphine and was allowed fluids. He complained of a good deal of pain in both testicles. The next day he required catheterization, but there was no blood in the urine. Throughout the day he had diarrhoea, with obvious blood in the stools.

Three days later he was put ashore. He was pale and exhausted; his temperature was 99° and his pulse 100. The abdomen was tender, especially in the left epigastrium, but there was no true rigidity; there was a moderate generalized distension and no evidence of free fluid or loss of liver dullness. He vomited twice in the first twenty-four hours, and diarrhoea with melaena continued for two days. The urine was free from blood. The blood count and haemoglobin were normal. Fluids only by mouth, together with tinct. opii, mxx, t.d.s., were given for three days, when the diet was gradually built up. Four days after admission there was still tenderness, but the tender areas varied, sometimes being in the left and sometimes in the right epigastrium; occult blood was present in the faeces. He suffered a good deal of pain in the lower part of both sides of the chest, and had a little sputum, but there were no notable physical signs, and a chest radiograph taken four days after admission showed no pathological features. A slow recovery, uneventful except for a daily pyrexia of 99° to 100.5° for ten days, followed.

In the other six patients of this group the clinical symptoms were very similar, though of varying degrees of severity. Two other patients complained of severe bilateral testicular pain. No patient had blood in the urine, and the testicular pain was probably due to compression and not to referred pain.

Group B

Laceration of Ileum; Peritonitis; Compression Injuries of Lungs; Laparotomy and Suture of Perforation; Ether Convulsions; Death

Case 2.—A lieutenant of the R.N.V.R. aged 26 sustained injuries when a torpedo struck his ship. He was trapped in a compartment flooded with oil, and was rescued from the water within an hour of the explosion. He was able to walk to a cabin though suffering from severe vomiting. When seen by a surgeon lieutenant four hours after the sinking the pulse was 80 and the temperature 100°; he complained of abdominal pain with tenderness in the right iliac fossa. Twelve hours later the pulse was 96 and the temperature 103°, and he coughed a good deal. He was unable to pass urine, and had severe pain in both testicles. Twenty-four hours after the attack on the ship he was restless, the pulse was 120, he passed blood and mucus per rectum, and coughed up some darkly stained frothy mucus that contained fuel oil. At this time he was in a corvette actively engaged against the enemy, and laparotomy was quite impracticable. Thirty-eight hours after being torpedoed he was put ashore with the diagnosis of "possible rupture of a viscus or subperitoneal haemorrhage." On admission to hospital he was restless and exhausted, with a temperature of 101° and a pulse of 110. The abdomen was not rigid, but there was considerable tenderness in the right iliac fossa. He was also dyspnoeic. Immediate operation was considered inadvisable because of the patient's poor general condition and the uncertainty of the diagnosis. Resuscitation measures included morphine, a pint of plasma, and 1½ pints of saline and glucose given intravenously throughout the night. A considerable improvement followed, but fifty hours after the torpedoing he presented unmistakable signs of spreading peritonitis in the lower abdomen, and operation could not be deferred. The blood picture was normal and the haemoglobin 90%; there was no blood in the urine. The stomach was washed out and the tube left in place while intratracheal gas, oxygen, and ether were administered (Major T. H.

Hobbes, R.A.M.C.). Laparotomy disclosed a small tear in the ileum, about three feet above the caecum, which was closed by Lembert suture. There was gross distention of the intestines, and early general peritonitis with reddening of the peritoneum and exudate was seen. Many haemorrhages were found in the subperitoneal tissues. As the peritoneum was being opened ether convulsions developed; these were checked by intravenous sodium pentothal (0.5 gramme). On return to the ward the breathing was laboured and much frothy sputum was expectorated, and he died 4½ hours later, oxygen being given continually. A detailed necropsy account (see below) reported the presence of "pulmonary concussion."

Group C

Complications developing Some Days after Original Injuries

This group includes the cases of two sailors who survived what were severe original compression injuries, treated by conservative measures, but who developed localized abscesses which were treated successfully by drainage.

Case 3: Abdominal Compression; Haematemesis; Pelvic Abscess; Testicular Pain.—This patient, an A.B. aged 26, was injured by depth-charge detonations while in the water. He was admitted three days later in good general condition but with much generalized abdominal pain accompanied by guarding below the umbilicus. Temperature 100°, pulse 96. Before admission he had had considerable haematemesis but was constipated; an enema shortly after admission yielded a good result and relieved the abdominal pain. He had pain in both testicles, and the faeces contained occult and fresh blood. His general condition improved, but the lower abdominal pain persisted until the ninth day after admission, when he passed mucus. A rectal examination revealed a tender non-fluctuant mass in the rectum. A pelvic abscess was diagnosed; this was opened through the rectal wall two days later, when it was soft and fluctuant. Complete relief of symptoms followed, and the patient made an uninterrupted recovery.

Salient features of the case are: (i) The gradual development of the abscess without alarming symptoms. (ii) At no time was there evidence of a serious intraperitoneal catastrophe; the pulse was always under 100, and the temperature was never over 100°; nor did abdominal rigidity develop. (iii) The total white blood cell count never exceeded 14,000. (iv) The testicular pain. (v) It is impossible to know whether the abscess followed a small rupture or was due to permeation of organisms through a bruised segment of intestine.

Case 4: Compression Injuries; Haematemesis and Melaena; Right Posterior Subphrenic Abscess; Drainage; Right Pyothorax; Intercostal Drainage; Rib Resection; Recovery.—This patient, an A.B. aged 30, was admitted on the same day and from the same incident as the preceding patient. For three days at sea he had had persistent vomiting and haematemesis, with diarrhoea and blood in the stools. His general condition was poor, being decidedly worse than that of his colleague, and he could retain only iced water by mouth. Abdominal pain was general, but no area of local tenderness or rigidity existed; there was no general distension and no loss of liver dullness. The pulse rate never exceeded 90, and there was no indication for laparotomy, since the condition was improving rather than deteriorating when he was seen on the third day. Two days later all vomiting had ceased, but diarrhoea continued, with blood in the slate-coloured stools. The abdominal pain and tenderness had decreased. Six days after admission the temperature, which had been in the region of 99°, began to rise, and nine days after admission it reached 102°, with a pulse of 90. The white blood cell count was 25,000. Tenderness was present over the liver area and dullness and impairment of breath sounds were detected at the right base. A radiograph showed a raised right diaphragm, and there was an abscess cavity with a fluid level (Major W. N. Brown, R.A.M.C.). From this abscess foul pus was obtained by needle. Bacteriological examination showed a mixed infection from which non-haemolytic streptococci were isolated. Under general intratracheal anaesthesia (Major E. Fowler, R.A.M.C.) a portion of the ninth rib was resected posteriorly; the diaphragmatic and parietal pleura were adherent, and transdiaphragmatic drainage of a large abscess was instituted. The abscess drained well, but the temperature persisted, and physical signs and radiology disclosed a large pleural effusion six days after the first operation. Twenty ounces of thin foul pus was extracted by Potain's apparatus, and the next day an intercostal drainage was established, as a tension pneumothorax, the result of gas formation, had developed. His condition, which had been grave, improved steadily. Five days after the operation a pint of blood was given, and three days later better dr[illegible]e was effected. Under intratracheal gas-and-oxygen (Major [illegible]owler) a portion of the seventh rib was resected posteriorly and closed drainage into a water-sealed bottle through a Tudor Edwards tube was carried out. The temperature slowly subsided, and eight days afterwards was normal. The general condition improved and the patient developed a voracious appetite. At the time of writing a tube is still in the cavity and the lung is re-expanding satisfactorily.

Salient features of this case are: (i) The initial symptoms and the absence of signs pointing to definite visceral rupture. (ii) The slow development of a subphrenic abscess in a patient in a high Fowler position throughout; this suggests a small laceration or severe contusion of the stomach, duodenum, colon, or liver. (iii) The development of a large pyothorax with gas formation sufficient to cause a tension pneumothorax, and its satisfactory relief by drainage.

Pathology of Sudden Abdominal Compression

Lacerations do occur, but in many survivors the main feature is subperitoneal haematomata. The following necropsy report is given because it represents a picture of a severe case in which lung "blast" coexisted. It must be realized that in the other nine patients in this series the clinical feature of pulmonary concussion was not present, and it is probable that in "blast" injuries at sea the abdomen is affected more than the chest, and in this way contrasts with the picture seen in the blast injuries of air-raid casualties. In this respect it is important to note that the report given below refers to a patient damaged by torpedo explosion while he was in an enclosed space and not to a sailor injured by depth charges as he was swimming. The casualty in the water may well escape pulmonary concussion because the concussion wave acts chiefly on the abdomen. The presence of testicular pain in so many survivors is noteworthy in this connexion and is probably due to a direct underwater compression. The absence of external bruising in any patient of this series is striking.

Post-mortem Findings in Case 2, the Only Fatal Case

External Appearance of the Body.—A well-built man. There were no cutaneous or subcutaneous haemorrhages and no superficial abrasions. The recent abdominal surgical incision was healthy.

Thorax.—The pleural cavities were normal and did not contain free fluid. There were no haemorrhages in the parietal pleura, but small petechiae were numerous on the surfaces of the lower lobes of both lungs, especially the right. The trachea and bronchi were filled with frothy blood-stained mucus. The lungs were engorged and oedematous. There were many small haemorrhages, which were noticed only after fixation of a portion of the lung tissue. The heart and pericardium were normal and did not show any evidence of blast injury.

Abdomen.—The peritoneal cavity contained about a pint of blood-stained turbid fluid, and there was an acute diffuse fibrinopurulent peritonitis. No haemorrhages were present in the parietal peritoneum, but the visceral, especially that covering the distal loops of the small intestine, was studded with small haemorrhages, most of which were about 0.5 cm. in diameter. They were more numerous in the right side of the abdomen than on the left, and were particularly prominent along the line of attachment of the mesentery. There was an extensive extravasation of blood in the loose tissue in the vicinity of the hepatic flexure of the colon. The solid viscera were all undamaged. The stomach was engorged and showed pin-point haemorrhages on its inner surface. The duodenum was normal.

Starting from a point eight to ten feet from the duodeno-jejunal flexure and extending to the lower end of the sigmoid colon were many submucous haemorrhages similar in size to those visible on the peritoneal surface. They were most striking and numerous towards the distal end of the small intestine, where there was a perforation about three feet from the ileo-caecal valve. The degree of haemorrhage around the perforation was not enough to suggest that the latter had resulted from the weakening of the intestinal wall by an extravasation of blood. In the colon many of the haemorrhages were more diffuse, and over a particularly extensive one the mucosa had ulcerated.

C.N.S.—The brain was examined and found to be healthy.

During the course of the necropsy the abdominal wall was examined for intramuscular haemorrhages, but none was found.

Histological preparations were made from the lungs and small intestines. In the lung were found scattered intra-alveolar haemorrhages and oedema, separated by patches of normal tissue and areas of congestion with haemorrhage limited by the alveolar walls. In the oedematous patches there were many carbon particles and some basophilic debris. Many macrophages were present dealing with these foreign bodies, which were attributed to the inhalation of sea-water and fuel oil. Sections of the ileum showed the haemorrhages to be most severe in the submucous and subperitoneal layers of the intestines, but haemorrhages into the muscle layer were also observed. The sections showed that the haemorrhages were more diffuse than was expected from the naked-eye appearance of the gut. At the site of the perforation there was haemorrhage into the adjoining tissue, but not a great deal.

Discussion on the Post-mortem Findings

The patient suffered from ether convulsions during the laparotomy, and at the time of his immersion in the sea he inhaled sea-water, so we must attribute the oedema and congestion of the lungs to these; but the haemorrhages were similar to those which we have learnt to associate with bomb blast and which have been described a number of times in the literature.

There have been descriptions in the literature of abdominal injuries as the result of explosions at sea under circumstances similar to those in this instance. The interest of this case is that, when the above post-mortem findings are borne in mind, we can trace the course of events in the other patients of this series who recovered.

Note on Examination of Fish Killed by Depth Charges

No experiments were carried out to study injuries produced in mammals by underwater blast, but three fishes killed by depth charges were examined. Two of them did not show any naked-eye injuries either in the body cavity or in the brain, but one had an extensive extravasation of blood in the posterior part of the coelom. We are indebted to Surgeon Commander Button, R.N., and Surgeon Lieut.-Commander Carleton, R.N., for obtaining these specimens for us.

Summary

Sudden compression waves produced by torpedo and depth-charge explosions in ten patients showed their chief effects in the abdomen and caused subperitoneal and submucous haemorrhages and lacerations of the intestine. There was clinical evidence of submucous haemorrhages, shown by haematemesis and melaena in ten patients.

Seven patients recovered completely without operation; two others recovered after drainage of a pelvic abscess in one and after drainage of a subphrenic abscess and an empyema in the other; one patient died after an operation for a tear of the small intestine; the post-mortem results are described in detail. In addition to the abdominal injuries blast effects in the lung were seen. In none of the other nine patients were there symptoms or signs of severe blast lung injury, apart from a little haemoptysis in one.

The immediate symptoms after sudden compression were not severe.

The presenting symptoms were vomiting with blood in the vomit, diarrhoea with melaena, and considerable testicular pain in four cases. The last-mentioned symptom was probably due to a direct compression effect. Abdominal tenderness and slight rigidity were present for several days in the nine surviving patients.

There was no external bruising in any patient.

As none of the patients were seen in the first twenty-four hours it is difficult to assess the indication for immediate operation. In the one case with a perforation, the indication of a spreading peritonitis led to a laparotomy on the third day, though it is recognized that this is always a bad time for operation. In the two patients who developed abscesses it is possible that these followed the permeation of organisms through a contused bowel wall.

The results justify the adoption of a conservative management of such patients, especially if seen after twenty-four hours.

In neither of the two abscess cases were there positive indications demanding immediate laparotomy.

We must record the devoted care given at sea to these patients by Surgeon Lieut. J. B. MacIntosh, R.N.V.R., and Surgeon Lieut. R. Aston, R.N.V.R., and thank them for their accurate records, made under great difficulties.

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ACUTE RELAPSING DERMATITIS DUE TO NAIL VARNISH

BY

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In view of the extensive use of nail varnish the following record of a case of nail lacquer dermatitis may be of interest.

Case Report

The patient, a married woman aged 37, was referred to me by her medical attendant on November 6, 1941, with the following history. Nine weeks earlier "three or four red patches appeared on the right side of the face over the mandible and spread thence to the neck. An application of linimentum calaminae cleared these up in about a week, but a few days later they recurred in the same situation, spreading upwards over the right half of the face and producing oedema of both eyelids, associated with erythema and superficial exfoliation. Before this attack had completely subsided it was followed by a third, which spread downwards on the neck in urticated patches. These coalesced, and suggested, when the ears became affected, a picture resembling seborrhoeic dermatitis. On November 1 the rash had spread to the left side of the face and to the flexor aspects of both forearms, but neither the hands nor the fingers were involved." The patient confirmed these observations and stated, further, that she had had several attacks of hay-fever due to grass pollens in previous years, and one attack of dermatitis attributed to tulips, thus testifying to an allergic diathesis.

On inspection the main site of her present attack was on the right side of the face and neck, with subsiding oedema of both eyelids and slight exfoliation of the right auricle. The scalp, forearms, and hands showed no sign of inflammatory response, but there were two small symmetrical patches of diffuse dermatitis with erythema and branny scaling in both popliteal spaces. (The significance of these will become evident at a later stage.)

The rash was evidently an allergic response to some external antigen, although, as in so many of these cases, the actual agent was not suspected by the patient. While I was cross-examining her as to her habits in the use of cosmetics, her hobbies, and her pets, etc., I was struck by two very obvious facts—the high degree of polish on her carmine-dyed finger-nails, and her tendency to rest the right cheek and chin against the dorsal surface of her right hand, held in a semi-clenched position so that her fingers and finger-nails were in direct contact with the

parts primarily affected. Questioned as to her sleeping posture, she immediately added the left hand to her right and tucked both dorsal surfaces over and under the right side of the chin. At this stage I confided my suspicions of the cause to both the patient and her husband. They were unusually interested and co-operative, and it then transpired that every relapse had occurred at the week-end a few hours after applying a fresh coat of the paint. I was puzzled by the patches in the popliteal spaces, but the explanation was forthcoming a fortnight later when I rang up to ascertain progress. There had been no further attacks following drastic removal of the cosmetic with a "remover" supplied by the makers. The dermatitis and discomfort had almost completely cleared up, and so had the patches behind the knees, which were evidently the result of repeated application of a *colourless* nail varnish known to most women to have the property of checking the "laddering" in artificial (viscose) silk stockings, which of course have their origin in a nitrocellulose matrix.

Commentary

My patient had therefore confirmed the diagnosis by the simultaneous application of unsolicited patch tests, and incidentally had proved that the sensitizing agent was not the pigment but some other substance incorporated in the solution conveying it. A reference to H. Goodman's (1936) comprehensive textbook on cosmetics revealed how complex such mixtures have nowadays become, and in a recent instructive paper by Drs. Osborne, Jordon, and Campbell (1941) it is emphasized that "nail lacquers are highly complex mixtures containing a large number of potential eczematizing substances." They append a list, which includes (*a*) the cellulose (gloss-maker) nitrates, of various viscosities; (*b*) the solvents (e.g., methyl, ethyl, butyl, or isopropyl alcohols, and acetates—glycol monoacetate, toluol, acetone, etc.); (*c*) the plasticizers, which ensure a degree of elasticity and adhesion to the gloss and prevent cracking and splitting—many of these are resins or gums, stearates or benzoates, resorcinol or phenyl compounds, often implicated in the genesis of trade dermatitis; (*d*) the pigments, which these authors tend to exculpate in that respect; and, finally, (*e*) perfumes, which are similarly exonerated.

The known irritants are nearly always to be found in the first three groups; but the number and variety of these render identification of the exact antigen both difficult and laborious, nor is there any necessity to determine it from the dermatological angle. It is sufficient to prove that the offending agent was a nail lacquer and to remember that varnishes and lacquers are being increasingly used in standardized commercial products of many kinds as a protective coat or finish. Common examples include patent and imitation leathers, handbags, purses, belts, wrist-straps, playing-cards, vanity cases, hair-pins, toys, buttons, and waterproofed fabrics. All or any of these have caused a localized dermatitis at various times and in various situations, but the chances of trouble are great when the human body itself is subjected to the process, as in varnishing the nails. Brittleness, fissuring, and fracture have often been reported as purely local effects on the nail-plate, but the allergic manifestations which might conceivably arise in any area contacted by or within reach of the nail have not as yet received much attention in this country. In the paper by Osborne *et al.* an analysis of 100 cases demonstrates that there was a preferential involvement of the eyelids (78%). In 40 of these cases other parts of the integument were also involved, and the order of their frequency was: the neck, cheeks, and nose, shoulders and chest, pinna, lips, and mouth-angles, chin, external auditory meatus, trunk and thighs, arms and forearms, forehead, ano-genital areas, fingers, and dorsa of the hands. It is suggested that pruritus vulvae may have this aetiology in occasional cases, and where obvious causes are so rare the possibility is worth bearing in mind.

Before leaving the question of localization it might well be asked why, if nail lacquer causes dermatitis, the soft tissues adjacent to the nail-plates and the dorsal surfaces of the distal phalanges are so seldom involved. The point is not raised by Osborne *et al.*, but it might be answered that every woman who varnishes her nails takes good care to confine the operation to the nail substance, that the hands are more often washed than any other part of the body, and that the cuticle, as compared with other areas, is covered with relatively thick and resistant horny material, possibly toughened by its continual subjection to trauma with the nail-brush and manicure instruments. Unless the fingers were constantly crossed there would be little opportunity of mutual contact.

The type of dermatitis encountered was "erythemato-squamous." Macroscopic vesiculation was not seen, although oedema of the eyelids was a common association, nail lacquer being the most frequent cause according to the authors. In one of their cases (as in mine) "a patch of dermatitis appeared on the patient's leg after she had applied nail polish to stop a run in her stocking."

The value of patch tests is thoroughly discussed by Osborne *et al.* Many cases appear to have given a negative response when the lacquer was applied to areas at a distance from the original reaction, and in these authors' opinion "there is no substitute for careful clinical observation following withdrawal of the offending allergen." The frequency of nail lacquer dermatitis in the United States is proved by the lively discussion which followed the reading of their paper, in which several well-known dermatologists took part.

Summary and Conclusions

A clear case of relapsing dermatitis due to repeated contact with nail varnish suggests—considering the popularity of that cosmetic in this country—a careful watch for a similar aetiology among the many cases of unexplained facial dermatitis in women, and even in cases in which the reaction is not confined to that area.

The use of a nitrocellulose lacquer on toys and other objects handled by children should not be forgotten when allergens for obscure labial, facial, or digital dermatitis are being sought.

As the regional distribution and the type of reaction are by no means limited or specific it may repay the examiner to take special notice of the degree of ungual gloss in any case of dermatitis—*de causa ignota*—in women, or for that matter in men too, for one of the American authors' 100 cases was in a male.

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The sixteenth annual general meeting of the Association of Special Libraries and Information Bureaux was held at the Royal Institute of British Architects, London, on December 13. The chair was taken by the president, Sir Harry Lindsay, director of the Imperial Institute, whose introductory remarks touched on the widening scope of the association's activities, a subject further developed by Mr. E. J. Carter, the honorary secretary, in his review of the year's work. Membership remained steady and publications continued as usual. New opportunities for service arising from war conditions had been seized, among which was the investigation into the location and supply of scientific and technical periodicals now reaching the country from enemy and enemy-occupied territories, a survey carried out under the auspices of the Royal Society and the Rockefeller Foundation. Details of the information thus compiled can be had from the ASLIB office at 31, Museum Street, W.C.1.

ACUTE APPENDICITIS ASSOCIATED WITH INTRAPERITONEAL HAEMORRHAGE FROM RUPTURE OF THE CORPUS LUTEUM

BY

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More than 300 cases of intraperitoneal bleeding from rupture of the Graafian follicle or the corpus luteum have now been recorded, most of them within recent years. In a review of the literature, however, I have been able to trace only one case in association with acute appendicitis —that of Hoyt and Meigs (1936). Accordingly, the following case may be considered worthy of record.

Case Report

A housewife aged 31 was sent to hospital on October 3, 1940, as a case of acute appendicitis. Two days before admission she complained of the sudden onset of umbilical pain, which soon became localized to the region of the right iliac fossa. She vomited several times. The bowels were opened daily and there was no disturbance of micturition. The menstrual cycle was a regular one of 28 days, with a catamenia of 4 or 5 days. The last menstrual period had occurred twenty-six days before admission and had been normal. There was no leucorrhoea. She had never been pregnant, and had never had any previous attack of a similar nature.

On examination the patient was seen to be a well-nourished woman. Her temperature was 99.4° and pulse rate 100. The tongue was covered with a dense fur, and the breath was heavy. Tenderness was present in both lower quadrants of the abdomen, but was very pronounced in the right iliac fossa, where there was appreciable muscular rigidity. Blumberg's sign was positive. Vaginal examination was difficult because of extreme tenderness in the right fornix and pouch of Douglas, but no gross abnormality was detected.

A diagnosis of acute appendicitis was made, and under ether anaesthesia abdominal section was performed through a right lateral rectus incision. On entering the peritoneal cavity it came as a great surprise to discover some free blood. Further investigation revealed that there was a small pelvic haematocele and that the source of the bleeding was a slight but persistent ooze from rupture of a corpus luteum in the right ovary. The appendix, somewhat injected and oedematous, was seen to occupy a pelvic position lying close up to but not touching the right ovary. One mattress suture sufficed to arrest the oozing from the corpus luteum. The pelvic haematocele was then evacuated and the appendix removed. No further pelvic pathology was noted. The abdomen was closed without drainage.

The post-operative course was uneventful until the eleventh day, when signs and symptoms of a small pulmonary embolus developed. These soon cleared up, and the patient was discharged from hospital on the twenty-third day. The pathological report on the appendix was "catarrhal appendicitis."

Commentary

It is worth remembering that in young women acute abdominal symptoms may be caused by bleeding from rupture of the Graafian follicle about the mid-menstrual phase or from rupture of the corpus luteum later in the menstrual cycle. In the former the haemorrhage is usually slight, while in the latter it may be profuse. That it is possible to make a correct pre-operative diagnosis may be seen from the fact that of a series of 58 cases collected by Hoyt and Meigs at the Massachusetts General Hospital the diagnosis was proved to be correct at operation in no fewer than 17. Clinically, three types can be recognized, depending on the amount of haemorrhage: (1) massive cases in which the clinical picture is dominated by shock, resembling the acute fulminating intraperitoneal rupture of a tubal pregnancy; (2) discrete bleeding, with signs of peritoneal irritation; and (3) slow bleeding, with the formation of pelvic haematocele.

The only constant and characteristic feature is the sudden onset of abdominal pain—usually in the right lower quadrant, since analysis of the reported cases shows that the lesion is commoner on the right side. Thus, in the diagnosis, acute appendicitis, rupture of a tubal pregnancy, and torsion of an ovarian cyst are the main conditions to differentiate.

There has been much speculation as to the aetiology of the condition. Wilfred Shaw (1927) remarked on the effect of trauma in determining bleeding from rupture of an ovary that is the site of congestion, from chronic pelvic disease, or from a normal ovary showing pre-menstrual congestion. It is remarkable, however, that in the recorded cases trauma has rarely been a factor. In some instances the act of coitus seems to have been the cause. Bimanual examination has also been cited as the precipitating factor, and it is interesting to note that Forssner believed that such bleeding almost always resulted from rupture of an ovarian pregnancy. In the case described above it is possible that some abnormal hyperaemia of the ovary due to the proximity of an acutely inflamed appendix was responsible for the rupture and subsequent bleeding from the corpus luteum.

I am indebted to Dr. J. Clark, medical superintendent of the City General Hospital, Sheffield, for his encouragement and permission to publish the details of this case.

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Medical Memoranda

Tetanus treated with Sulphapyridine

There is some evidence to suggest that sulphapyridine is of value in the treatment of anaerobic infections (Singer, 1940; M.R.C. War Memorandum, No. 2, 1940). Bryant and Fairman (1940) used it in a series of cases of tetanus, with results which they considered encouraging, but evidence that it is of definite value is still inconclusive, and further observations are needed. The following description of a severe case in which sulphapyridine was given in addition to the routine treatment with antitoxin and sedatives is of interest:

CASE REPORT

The patient, a previously healthy girl aged 10, trod on a nail and sustained a slight penetrating wound of the plantar surface of the right big toe. The wound was healing satisfactorily. Seven days later she complained of pain in the left side of the chest, and after a few hours her throat was sore and her jaw so stiff that she could not open her mouth properly. Twenty-four hours later she was given 3,000 units of antitoxin by her doctor and sent to hospital.

On admission she also complained of abdominal pain, showed risus sardonicus, and could separate her teeth only a quarter of an inch. Her neck was stiff, and there was tonic rigidity of the muscles of the trunk, with arching of the back sufficient to allow the flat hand to be passed under the spine without difficulty when she was lying at full length. There was some tendency to reflex irritability, but no reflex spasms had occurred. The slight wound on the toe had almost healed and looked healthy. 200,000 I.U. of antitetanus serum was given intravenously and a further 10,000 units injected into the tissues round the base of the injured toe. There appeared to be nothing in the wound to treat. Sulphapyridine was also given, and she received 7 grammes in the first twenty-four hours and 6 grammes in the

second twenty-four hours. Her condition, however, became worse, and reflex spasms began to occur six hours after admission (thirty hours after the onset of trismus). These were satisfactorily controlled with rectal paraldehyde in doses of 4 drachms in normal saline, and this treatment was repeated when the reflex spasms tended to recur. In spite of the fact that the reflex spasms were comparatively easily controlled her condition steadily deteriorated, her pulse rate and temperature rose, and she died eighty hours after the onset of trismus. She never had a really severe reflex spasm, and death seemed to be due to cardiac failure.

Post-mortem examination showed slight congestion of the brain, lungs, and other organs, but no changes were found to suggest that the cause of death was anything but uncomplicated tetanus. The scar of the old wound was explored but no pus was found.

COMMENTARY

In this case an incubation period of seven days suggested a severe attack. On the other hand, the age of the patient, the slight wound on the foot, and the fact that there was only tonic rigidity without reflex spasms on admission twenty-four hours after the onset were all favourable signs. When, however, reflex spasms began to come on six hours later the prognosis became grave. It has been shown previously that if reflex spasms occur regularly within forty-eight hours of the onset of trismus the chances of recovery are slight and that there is a direct relation between the period of onset (the time between the first onset of trismus and the onset of reflex spasms) and the duration of life. Observations on the 16 fatal cases in a previous series treated only with intravenous antitoxin and sedatives indicated that a period of onset of thirty hours would give a duration of life of between three and five days from the first onset of trismus (Cole, 1940). In the above case death took place eighty hours from the onset. The chances of recovery, however, seemed sufficiently borderline to suggest that an additional effective therapeutic measure might tip the scales in favour of recovery. The fact that sulphapyridine not only failed to do this but did not seem to have any effect whatever on the course of the disease or the duration of life suggests that it is not of much value in tetanus.

It is unwise to draw conclusions from a single case. Further observations are needed, but a small number of cases carefully observed on the above lines would give reliable information. It is important to remember that lobar pneumonia is an occasional complication of tetanus and that sulphapyridine would then be of great value. This case also illustrated the fact that, with present treatment, once a lethal dose of toxin has been absorbed death will take place at the appointed hour, whether or not the reflex spasms are controlled, probably from the effect of toxin on the medullary centres.

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Hemiplegia as a Complication of Diphtheria

The following case records the sudden onset of a complete hemiplegia in a child suffering from nasopharyngeal diphtheria, with subsequent recovery.

CASE HISTORY

A girl aged 9, with no previous illnesses of any significance, was admitted to Kendray Isolation Hospital on April 21, 1941, with thick membrane extending from the swollen tonsils on to the soft palate and posterior pharyngeal wall, membrane inside the excoriated nares, sero-sanguineous rhinorrhoea, typical bull-neck, and the usual features of a third-day case of severe nasopharyngeal diphtheria. The heart sounds, though poor, were closed, and the temperature remained below 99° throughout the illness. She received 80,000 units of antitoxin intravenously, cardiac stimulants, and intravenous drips, and, apart from transient palatal paresis from the seventh to the eleventh day in hospital and gallop rhythm from the eleventh to the fourteenth day, progress was uneventful for seventeen days.

The eighteenth day witnessed the sudden onset of a flaccid paralysis which affected the right side of the face and right limbs, and which was accompanied by double incontinence. There was no coma, but the child was dazed and very weak. Auscultation revealed a loud, blowing systolic murmur, maximal at the pulmonary area. Detailed clinical examination, deferred for thirty-six hours because the girl was so desperately ill, showed that the paralysis was becoming spastic: brisk ankle-jerks, biceps-jerks, and triceps-jerks, ankle clonus, and Babinski's sign; motor function and fine sensation absent, but gross sensation present in the hand; no athetosis; no aphasia, although the child was right-handed. Both knee-jerks were absent, presumably indicating diphtheritic neuritis.

Treatment consisted in nursing care, strapping the side of the face, the provision, later, of a cock-up splint and an adjustable Thomas splint with a foot-rest to combat wrist-drop and drop-foot, and, finally, exercises. Sensation returned speedily; organic reflexes were restored in nine days; the motor nerves recovered slowly, the leg movements, which did not begin until the nineteenth day, being the last to return. The pulmonary murmur soon disappeared. During the period of gradual restoration of function, which was complicated by the recurrence of palatal paresis and by right internal strabismus (both transient), radiography and electrocardiography revealed no cardiac abnormality. After 125 days in hospital the patient was discharged, with all movements present, though weaker than on the unaffected side, and the heart normal to clinical examination.

DISCUSSION

Hemiplegia is usually a sequel to cardiac disease; therefore the pulmonary murmur must be considered first. As this was absent before and after the illness, and as the subsequent normality of the heart was confirmed by radiograph and electrocardiogram, it is necessary to exclude all organic causes, congenital and acquired. It might perhaps be suggested that an acute simple endocarditis, such as occurs after streptococcal infections, had developed at the pulmonary valve, and that subsequent absorption of vegetations had left the heart apparently normal. But to postulate an endocarditis which is completely apyrexial and which clears up in a matter of days carries us beyond the limits of human credulity. Clearly, despite its loudness, the murmur was merely one of those functional murmurs about which much has been written and little is really known. Possibly it was akin to the soft apical systolic bruits often audible in febrile illnesses, or, more probably, since in diphtheria the blood volume is reduced by the passage of plasma into the tissue spaces, it was akin to the haemic murmurs of anaemia. Anyway, it lacked pathological significance.

We must now find a connexion between diphtheritic toxaemia and a lesion of the internal capsule. Hemiplegia can develop after encephalitis (which disease has been described in association with diphtheria and other infections), but there is no evidence on which to base such a diagnosis. Again, it can occur as a complication of meningitis, but meningeal symptoms could hardly pass unnoticed in a hospital for infectious diseases. Moreover, encephalitic and meningitic hemiplegias are typically slow in onset.

Cerebral haemorrhage and tumour being excluded by the child's recovery, the diagnosis seems to lie between embolism and thrombosis, with absence of coma perhaps favouring thrombosis. Since the left side of the heart was not diseased, and since, even if the pulmonary valve had been diseased, an embolus from that valve would have had to traverse the entire pulmonary circulation before entering the systemic blood stream, the most feasible explanation of embolism would seem to be that a minute fragment of aspirated membrane in some way gained entrance to the lung capillaries and travelled onwards with the blood: not impossible, but, surely, most unlikely. The grossly enfeebled circulation and the increased viscosity of the blood as a result of the extrusion of plasma to the tissue spaces make cerebral thrombosis a much more probable diagnosis.

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Reviews

CONGENITAL SYPHILIS

Congenital Syphilis. By Charles C. Dennie, B.S., M.D., and Sidney F. Pakula, B.S., M.D. (Pp. 596; illustrated. $8.00.) Philadelphia: Lea and Febiger. 1940.

In spite of its obvious importance the subject of congenital syphilis still remains very largely a closed book to the average general practitioner, yet it is the G.P. who cares for the mother throughout the period of gestation, and it is the G.P. who first sees the baby when it is born. These are the times when it is important to diagnose the disease and start treatment. Dennie and Pakula very properly stress the fact that a syphilitic mother adequately treated in the early stages of pregnancy has a very good chance of producing a healthy baby, and that the earlier a syphilitic baby is treated the greater are the chances of a successful result. We know of no book which contains so much information on the subject; it would not be too much to say that every aspect has been dealt with fully and adequately.

After an illuminating account of how an examination should be carried out the authors proceed to discuss, in order, serological reactions, pregnancy, and the effects of syphilis on the various systems and organs of the body. Treatment is dealt with at considerable length, no fewer than 115 pages being devoted to it. Continuous-alternating therapy as practised in the U.S.A. is preferred to the concomitant-intermittent more favoured in this country, and much stress is laid on the value of heat, in the form of artificially produced hyperpyrexia, in the treatment of the more resistant types of the disease. The suggestion that "the organisms of syphilis do not die a thermal death" will not be accepted by everyone, but this is purely a matter of academic interest.

It would seem almost invidious to criticize such an excellent book, but everyone will not agree that syphilitic mothers should not have babies (when the outlook is so good with early adequate treatment), that "914" and bismuth are no better than "914" and mercury, that patients who develop post-arsphenamine jaundice should *never* have any more arsenic, that bismuth dermatitis is common, or that bismuth should not be administered to a patient who has suffered from an arsenical dermatitis. These are, however, matters of opinion. The dicta that the eye is the tell-tale organ in diagnosis and that hyperpyrexia should be followed by chemotherapy cannot be too strongly commended; it does seem extraordinary to read that there is no malarial depot in the U.S.A.

The expert will find everything he wants to know in this voluminous work, but we fear that the mass of detail and the price will rather frighten the general practitioner, for whom it appears to have been intended.

SOCIAL WORK

Proceedings of the National Conference of Social Work. (Pp. 736. 20s. net.) New York: Published for the National Conference of Social Work by Columbia University Press; London: Oxford University Press

The present volume contains certain selected papers read at the sixty-seventh annual conference of the National Conference of Social Work, held in 1940 at Grand Rapids, Michigan. The papers cover all branches of social work and many of them especially concern American life, which naturally differs from our own and so are of less interest to us in this country. Others, however, are of great importance to us and are well worthy of study by all those interested in social work. The first part contains papers on social objectives in a time of world crisis, including an interesting discussion of the implications of the European situation for the United States. The second part deals with the various branches of social work. Among the problems discussed are those of health and medical care, which may well be studied with advantage in view of changes in medical policy likely to take place here after the war. The third part deals with social work practice, starting with some interesting discussions of work with children, which are also of interest to us in view of the many new problems of child care raised by evacuation, hostels, the break-up of families, etc., imposed on us by the war.

There are no fewer than 59 papers included in this volume, which extends to over 700 pages, so that a comprehensive review is impossible, but it should be remembered as a source of information and ideas which will repay the study of the social student in whatever branch of the subject his interest may lie.

DESTRUCTION OF SCIENCE

The Nazi Attack on International Science. By Joseph Needham, Sc.D., F.R.S., Sir William Dunn Reader in Biochemistry, University of Cambridge. The Thinker's Forum, No. 14. (Pp. 47. 6d.) London: Watts and Co. 1941.

In 1877 the great Helmholtz in his rectorial address at Berlin told his students that they had received freedom as a valuable inheritance and begged them to hand it on "purified and ennobled if possible." What their successors have actually done is remorselessly exposed in Dr. Joseph Needham's pamphlet, which substantiates Dr. Fosdick's indictment in his report on the interference with the work of the Rockefeller Foundation on the Continent. The author strongly emphasizes that "total war" as interpreted by the Nazis involves the suppression of universities and intellectual centres, the abolition of free thought and research, and the concentration of intellectual effort on destructive ends. The conditions for the appearance of this on a colossal scale are those which govern all racketeering—namely, the presence of two relatively powerful groups between which exists mutual fear. Said Kneck: "We do not know science, but only that science which is valid for us Nazis." So bankrupt is their racial conception in science that it has been necessary to invent a new category of "White Jews"—i.e., non-Jewish scientists who support theories proposed by Jews. Whole laboratories have been completely dispersed, such as the world-famous department of muscle physiology presided over by Meyerhof. Those of his colleagues who remained in Germany have published nothing for years. Dr. Needham saw with his own eyes the once-famous veterinary college in Berlin stripped of its brilliant staff and reduced to a level of unbelievable incompetence. The effect of all this is shown in the *Biochemische Zeitschrift*, which used to publish twelve to fourteen volumes annually up to 1933, since when they have steadily declined to two, and in those the majority of papers are not by Germans, despite their claims to superiority. Among men of established scientific reputation in Germany some 18% have been dismissed, though in certain universities the figure rose to as high as 32%. Meanwhile "faith-healers" and "nature healers" have been granted licences to practise medicine; after five years of Nazi rule the number of students in German universities had dropped to one-half, and those studying science to one-third. As for the dominated countries we need only mention Cracow, where a number of aged men of high distinction were thrust almost to a man into Nazi concentration camps, while in Paris men of world-wide reputation such as Langevin have been imprisoned.

We might add to Dr. Needham's exposure the fact that the *Deutsche Volksheilbewegung*, patronized by the Nazis, demanded in 1936 the reversion of the present healing art

to the concepts of Paracelsus! With those reactionary beliefs in control, what wonder at our author's conclusion: "German science has been largely destroyed. . . . Should the Nazis be victorious science in Europe may disappear for several generations and all social progress with it."

Notes on Books

Venereal disease is a problem which is always with us, and its importance is enhanced under war conditions when manpower is a matter of first importance. The appearance therefore of a pamphlet by Dr. E. A. WILSON entitled *On Guard against Venereal Diseases* demands notice. Everyone should know what V.D. is, how it is acquired, how avoided, and how dealt with; the more the general public is informed about the matter the easier the problem becomes. Most of the statements in this publication are true, much of the advice given is sound, and the theme "Be on your guard" is to be commended. On the other hand, a certain lack of balance is noticeable—diet as a sex stimulant is overstressed, while a mere five lines is devoted to alcohol, over-indulgence in which is often an incentive to promiscuity. The author, too, is inclined to overstate his case: dilating a stricture should not cause excessive pain, and people don't get gonorrhoea from lavatory seats; extragenital chancres do occur but are rare in civilized communities; phobias are easily created and may be dangerous. More insistence on *skilled* personal disinfection, and the avoidance of such a controversial matter as compulsory notification, would add greatly to the value of this little book. The author has evidently got out of his depth, and would have done well to consult someone with more experience of the subject. Copies are obtainable from the Women's Printing Society, Ltd., 31, Brick Street, W.1 (price 1s. 3d. post free.).

A second edition of *Diseases Transmitted from Animals to Man*, edited by THOMAS G. HULL, Ph.D., director of the Scientific Exhibit of the American Medical Association, has been published in this country by Baillière, Tindall and Cox at 30s. During the past ten years much new material has been added to our knowledge concerning the transmission of diseases from animals to man, and all the chapters have been revised and brought up to date by eighteen experts in the various fields under review. The chapters on animal parasites, on fungus diseases, and on psittacosis have been rewritten, and there are new chapters on louping ill, sore mouth of sheep, equine encephalomyelitis, Rift Valley fever, typhus fever, and relapsing fever.

The Scientific Report of the Royal College of Surgeons of England for the year 1940-1 contains a full and circumstantial account by the assistant curator, Dr. A. J. E. Cave, of the precautions taken to safeguard the Museum against enemy aerial activity, and the damage done in May last, when during the severe air raid on the capital a large part of the Museum, premises and contents alike, was destroyed by high-explosive and incendiary bombs. The year's happenings are grouped under three heads: (1) the events prior to the night of May 10, 1941; (2) the damage sustained upon that fateful night; (3) the subsequent state and disposition of the Museum collections. A tabular analysis completes the record, showing that the approximate former strength in all departments was at least 65,827 specimens, and the approximate survival strength in all departments is at least 26,600 specimens. Dr. John Beattie, Bernhard Baron Research Professor, gives an account of the removal of the library and laboratories and their temporary rehabilitation elsewhere; this work was financed by a grant from the Rockefeller Foundation. Laboratory investigations in progress during the year are described. The report ends with a note by Sir Arthur Keith, Master of the Buckston Browne Research Farm, a list of the scientific and technical staffs of the museum and research departments of the college, a list of specimens added, and a time-table of lectures and demonstrations.

Diabetics in Wartime is published in paper covers at 1s. by H. K. Lewis and Co., Ltd. This excellent little book has been prepared for the patients of the Diabetic Clinic, University College Hospital. The diets and their alternations are clear and fitted to wartime conditions.

Preparations and Appliances

ILLUMINATED SIMS'S VAGINAL SPECULUM

Mr. G. A. BAGOT WALTERS, F.R.C.S.Ed. (Lincoln), writes:

Probably the most generally useful and most widely used vaginal speculum is the "Sims's double duckbill." The chief disadvantage of the standard pattern is that the instrument is not provided with a lighting attachment, and therefore one has to either wear a headlamp or provide illumination from some other source, such as a handlamp.

By employing the concealed oblique lighting arrangement as used on the Naunton Morgan rectal speculum this disadvantage is overcome. As the lighting attachment is readily detachable the instrument is still easy to clean, and can, of course, be sterilized by boiling, a most desirable feature. Also, as the lumen is not encroached upon, there is no interference with vision or any necessary manipulations. Furthermore, as the lamp-holder will fit into either end, the two sizes which the Sims's speculum provides are still instantly available.

I have now been using one of these instruments in hospital and private practice for some months, and have found it most useful, the lighting afforded being excellent.

The illustration shows the main features of this simple speculum, which was made for me by F. Davidson and Co., now of 42, Langham Street, London, W.1.

CAPAC BINAURAL COMPARATOR

The Capac Company Ltd. (2, Ullswater Road, S.W.13) have produced the Capac binaural comparator, which is a special form of stethoscope designed to enable the examiner to listen to heart sounds or lung sounds from two areas simultaneously. The instrument can also be used as an ordinary stethoscope. The head frame is of rigid construction and adjustable by means of a milled clamping nut to any position desired; a spiral spring is provided to give the necessary compression if the screw device is not used. When the instrument is used as a comparator the chest-piece is replaced by a connecting tube, which in turn branches into two, each branch terminating in a chest-piece. The B type of chest-piece, which is the one fitted to the present model, is of massive construction and therefore advantageous in that any movement of the fingers on the instrument does not produce adventitious sounds which interfere with auscultation. The provision of rubber caps to the chest pieces and of rubber ear plugs on the head frame make for both comfort and accuracy during auscultation.

We have given both the comparator and the ordinary stethoscope a careful clinical trial, and have found that they are convenient and efficient. There can be no doubt that for ordinary purposes its use as a stethoscope is sufficient, but for comparison of heart sounds at the base or of breath sounds at corresponding areas in the two lungs the comparator is frequently helpful. The only point we have found to criticize is that the retaining spring on the head frame is very easily set into vibration by an inadvertent touch or even by the breathing of the examiner, a loud musical tone being produced which interferes with the auscultation; we therefore prefer to use the instrument with the spring removed and the pressure on the ears comfortably adjusted by means of the milled clamping nut.

TABLOID SULPHAGUANIDINE

Messrs. Burroughs Wellcome and Co. have introduced a new preparation. It is tabloid sulphaguanidine, which is intended for the treatment of bacillary dysentery, and also for killing as many coliform organisms as possible when surgical operations on the colon and rectum are performed. This sulphonamide derivative is so insoluble that it stays in the intestinal tract and is not absorbed; thus a steady low concentration is maintained in contact with the mucous membrane.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JANUARY 31 1942

QUININE AND WORLD WAR

The war has taught us at least one lesson: it has emphasized the importance of saving. We have had to save money, clothes, metals, paper, and now rubber. It looks as if we might also have to save quinine, for the greater part of the world's quinine supply comes from the Dutch East Indies.[1] We were authoritatively informed at the beginning of the war that the amounts of quinine available were enough to meet all contingencies. It is doubtful, however, if Whitehall had at that time even considered the possibility that the Dutch East Indies might pass into enemy hands, or, worse still, that the cinchona plantations might be "scorched." If the plantations were to be taken by the Japanese and the war to last for some years more there might well be a quinine famine, at least for a short time; if, in addition, the cinchona plantations were destroyed the famine would last for many years.

Cinchona plantations do not grow in a year, and the area of the world's surface that provides the right climatic conditions for the cultivation of cinchona trees is very limited. Although efforts have been made to increase the area under cinchona cultivation in the Himalayas these plantations do not yet supply a tenth of the quinine needed even by India, nor are those in Guatemala of any great importance at the moment. Faced with these possibilities what course is it best to pursue? Conceivably the world consumption of quinine might be drastically reduced. Most malariologists, however, are agreed that the present world consumption of quinine is already far too small, for malaria still remains the most serious disease of the Tropics, numbering its annual victims in India and Africa not by hundreds but by millions. In time of war, however, it is essential that the fighting Forces should have adequate antimalarial drugs, for not one but many military operations have been brought to nought by malaria. In the Walcheren expedition of 1809 the troops died from fever—347 per thousand as contrasted with 16.7 per thousand killed by enemy action—malaria and typhoid were the main causes of death. In the Rangoon expedition of 1824-5 there were only 35 deaths from wounds, but 450 out of every 1,000 engaged died of malaria. In the Burma expedition of 1826 the enterprise in Aracan had to be abandoned owing to fever, for "everyone who was not dead was in hospital." In the war of 1914-18 malaria came into its own. In Macedonia the high total of 160,000 admissions among the British troops was reached. The French were as hard hit, and as a result active operations came to a standstill. In East Africa there were 107,700 admissions, giving the highest rate per thousand.

It is obvious that quinine cannot be dispensed with unless there are other antimalarial drugs as efficient and as cheap. The possible substitutes for quinine are totaquina, atebrin (now called mepacrine), plasmoquine (now known as pamaquin), and some of the sulphonamide derivatives. Totaquina consists of 70% of crystallizable alkaloids and not less than 15% of quinine; it must not contain more than 20% of amorphous alkaloids and not more than 5% of water. Two types of totaquina are available. Type I is prepared from the total alkaloids of *Cinchona succirubra*. It is doubtful whether there are enough trees of this species to provide large supplies, although the bark of *Cinchona robusta* may replace that of *C. succirubra*. Type II contains more cinchonine than Type I and is prepared from *C. ledgeriana* residues, with the addition of sufficient quinine to bring it up to specification. The compulsory use of totaquina would undoubtedly conserve the present stocks of quinine, but totaquina would not provide an inexhaustible supply of cinchona alkaloids. Although the newer synthetic antimalarial drugs have been used in place of quinine in the treatment of malaria, it is now generally agreed that mepacrine and pamaquin together are more toxic than a combination of quinine and pamaquin, the simultaneous administration of mepacrine and pamaquin apparently increasing the toxicity of both. In benign tertian and quartan malaria the association of pamaquin and quinine represents an efficient method of treatment. Efforts might be again made to test the efficacy of mepacrine alone, followed after an interval by pamaquin and quinine. Perhaps more quinine is used up in prophylaxis than in the actual treatment of malaria. Although it is recognized that quinine is not a true causal prophylactic, in that it will not prevent infection, it undoubtedly reduces the number of clinical attacks in a given period, and in addition, when given to large bodies of troops, it has the advantage of extremely low toxicity. Mepacrine and pamaquin, on the other hand, are much more likely to produce toxic reactions if used for any length of time.

A new field of chemotherapy has recently been opened up in the discovery that certain sulphonamide derivatives possess antimalarial activity. Thus Coggeshall, Maier, and Best[2] found that sodium *p.p'*-diamino-diphenylsulphone-N, N'-didextrose sulphonate (promin[3]) had a curative effect on seventeen patients infected with either benign or malignant tertian malaria. The benign infections were more resistant than the malignant tertian, while infections in negroes were more responsive to the drug than those in relatively non-immune whites. Sulphadiazine produced a demonstrable effect in ten out of thirteen patients. It is obvious that further experiments are required on the effect of sulphonamide derivatives in malaria either alone or in association with other antimalarial drugs. Such experiments might well indicate a way in which a considerable saving of quinine could be made.

Two other investigations might also be actively pursued in view of the possibility of a shortage of natural

[1] See *British Medical Journal*, 1942, **1**, 78.

[2] Coggeshall, L. T., Maier, J., and Best, C. A., *J. Amer. med. Ass.*, 1941, **117**, 1077.

[3] See *British Medical Journal*, 1941, **2**, 856.

cinchona alkaloids. The synthesis of quinine might well be accomplished in the laboratory if the need were really acute, although there are at least two snags which have so far impeded research. Some effort also might be made to recover cinchona alkaloids from the urine of those to whom they are given by mouth. Quinine, for instance, is partially destroyed in the liver, but about half of it is excreted in the urine. No satisfactory method of extraction on a large scale has ever been worked out. Necessity, which is the mother of investigation, might teach us much in the conservation of essential drugs.

INCOMPATIBLE BLOOD TRANSFUSION AND Rh FACTOR

As most transfusion reactions due to incompatibility between the blood of the donor and that of the recipient are caused by errors in blood grouping, every effort should be made to ensure accuracy, and by far the best thing that can be done is to examine a person's serum for agglutinins as well as his cells for agglutinogens; the check so given will prevent mistakes. The direct test between the recipient's serum and the cells which are to be transfused will in most cases disclose mistakes, but an unsuspected antigen in the donor cells may be missed if the corresponding antibody is present in only small amount, as is quite often the case with anti-B in the serum of A and O persons. If the direct test also includes a mixture of the donor's serum and the recipient's cells its efficiency as a check will be increased. A direct test should never be omitted when it is at all possible to make it. Besides incompatibilities within the A B O groups, reactions may be due to other antigens and antibodies. The possibility of trouble from the meeting of some rare and uncharted antigen and its antibody has long been recognized, and the A B O subgroups and M N factors have been regarded with suspicion. Only three cases of spontaneous anti-M and none of anti-N have been reported, and as they are not antigenic for man M and N are most unlikely to give trouble. The direct test is not always sensitive enough to detect incompatibility, but, as the failure is usually due to the antibody's being present in small amount, any consequent transfusion reaction fortunately tends to be slight.

Recent work[1,2] has shown that immune antibodies to a variety of agglutinogens in transfused blood may be formed in a proportion of recipients who lack the particular antigen, so that a later transfusion of blood containing this antigen may lead to a severe or even fatal reaction. By the study of cases in which incompatible blood has been given in error it has been shown that A and B are probably regularly antigenic for human beings lacking these antigens. For example, A blood given to a B or an O person will cause a reaction ranging in intensity from the very mildest to one severe enough to kill; in any case, if the recipient survives, the anti-A in his serum will, within about a week, almost certainly be enormously increased, so that another transfusion of the same or of another A blood will be fraught with the gravest danger. Similarly, a recipient may be immunized against a subgroup antigen and trouble may arise at a later transfusion, although at first transfusion reactions due to the subgroups are not of much importance, because the antibodies concerned are very seldom present in large amounts.

A cause of incompatibility reactions which may not be so rare as those due to the subgroups is the Rh property recently discovered in human blood by Landsteiner and Wiener.[3] Cells containing Rh react with immune sera prepared by injecting rabbits or guinea-pigs with the blood of rhesus monkeys. The property is inherited as a simple Mendelian dominant and is present in about 85% of American whites. The examination of a small series of negro bloods suggests there may be racial differences in distribution, and there are indications of the existence of more than one sort of Rh analogous with the different forms of A. Antibodies for Rh do not normally occur in human plasma, but when Rh blood is given to some of the persons lacking the property the body seems to recognize the injected blood as foreign and eliminates it. At the first transfusion the haemolysis may be so gradual as to be unsuspected, but Rh antibodies may then be produced, and Rh blood, given at a later transfusion, may cause the most serious reactions. The detection of the Rh antibodies in man is always difficult and may be impossible. The techniques usually employed for grouping are quite inadequate, and the use of small tubes at low temperatures is the one most likely to be successful; but because there have been instances where the reactions at low temperatures were not so definite as those in the warm the tests ought to be performed at refrigerator, room, and body temperatures. (In connexion with the use of small tubes at low temperatures it is suggested that mixtures of serum and washed red cell suspension, 2% of centrifuged deposit, be centrifuged at low speed in cups containing ice water after they have first stood for several minutes in the ice water. The mixtures should then be shaken gently and read both macroscopically and microscopically.) In a group of cases in which it has not been possible to detect the antibodies it seems permissible to ascribe reactions to the Rh factor, because the recipients have all turned out to be Rh-negative, and some of them have been given other transfusions of known Rh-negative blood which have been completely successful. Besides causing trouble at subsequent transfusions, immune antibodies appear to be responsible for reactions in women, transfused for the first time, who have recently given birth to a child or had a miscarriage or stillbirth, the antibodies having been formed in response to an antigen present in the foetus and inherited from the father, but absent in the mother. Rh is perhaps involved more often than other antigens, and this seems to be so, too, in cases of erythroblastosis foetalis,[4] a familial haemolytic disease of the newborn which, it is suggested, results from the passage of the mother's immune agglutinins through the placenta to act on the susceptible blood of the foetus.

[1] Wiener, A. S., *J. Immunol.*, 1941, **41**, 181.
[2] *Arch. Path.*, 1941, **32**, 227.
[3] *J. exp. Med.*, 1941, **74**, 309.
[4] *Science*, 1941, **94**, 371.

The discoveries described give an explanation of the lack of uniformity observed in the results obtained by treating diseases, especially those of the blood, by repeated transfusions. Whenever a transfusion of whole blood is to be given to a patient who has been transfused before, or to a woman who has recently been pregnant, danger from immune agglutinins should be borne in mind, and the direct matching of the patient's serum and the donor's cells should be performed by the method and at the different temperatures mentioned above. This should be done even when the intended donor has been used previously and without trouble for the same recipient. As the presence of Rh antibodies may escape detection the ideal thing would be to use only Rh-negative donors for such patients.

PROTHROMBIN AND VITAMIN K

The spate of literature on plasma prothrombin and vitamin K is now in full flow, and Butt and Snell's[1] recent monograph, which is mainly concerned with the clinical aspects of the subject, has a bibliography of 350 references. Anyone tempted to put pen to paper on the subject would therefore do well to read this monograph before assuming that he has anything new or useful to say. Butt and Snell describe the discovery, properties, and natural sources of vitamin K and the various derivatives and variants of the vitamin, including the water-soluble compounds which are now available for intravenous injection. Very little is known about the metabolism and storage of vitamin K or the means whereby it promotes the formation of prothrombin, but a good account is given of the part played by prothrombin and vitamin K in the haemorrhagic diathesis, more especially in diseases of the liver and in the newborn. The methods of determining prothrombin are briefly reviewed, but it is doubtful whether the authors sufficiently stress their limitations. The Quick prothrombin test is merely a measure of the accelerated clotting time of plasma under conditions designed to exclude haemophilia. We may regard the clotting of blood as the beginning of a process of post-mortem autolysis, which, like any other ferment reaction, is profoundly affected by the presence of inhibitory and accelerator agents. Heparin, which is probably present in traces in normal blood and is demonstrably increased in peptone and anaphylactic shock, acts both as an antiprothrombin and an antithrombin, and normal plasma contains co-factors for both these reactions. Even the elaborate method of prothrombin estimation devised by Warner, Brinkhous, and Smith,[2] and modified in this country by Herbert,[3,4] does not avoid these complications. Ferguson and Glazko[5] have clearly demonstrated the possibilities of interference in this technique by antiprothrombins and antithrombins. Workers with these tests must constantly remind themselves that what they are measuring is the ability of the blood to clot, and that translation of the results in terms of prothrombin implies assumptions which are not always justifiable.

These ideas have been stimulated by an excellent paper on plasma prothrombin values of mothers and infants by Norris and Bennet.[6] The authors show that no relationship can be demonstrated between the level of prothrombin in the mother and her newborn child. This finding is of much practical importance as it suggests that we cannot pre-select mothers for prophylactic treatment with vitamin K. In adults it is excessively rare for hypoprothrombinaemia to result from deficiency of vitamin K in the diet, and we must wait for new technical methods before we can decide whether hypoprothrombinaemia in the child is due to insufficient transfer of vitamin K from the mother or some fault in the metabolism of the child. The authors go on to show that the accelerated clotting time of blood from the umbilical vein is shorter than that from the artery. Although they admit that other explanations are possible, they suggest that prothrombin may actually be formed by the placenta during gestation, and the fall in the prothrombin level of some infants after birth may be due in part to the removal of such a source of supply. It is doubtful whether this speculation is justified by the facts, and it certainly does not cover all the anomalies in the clotting of blood at birth. The Warner test and the Quick test give irreconcilable results at this time, and the authors' own results show that neonatal plasma responds to dilution in a different way from maternal plasma, which is suggestive of a variation in factors other than the quantity of prothrombin. For the present it would seem wiser merely to note the fact that blood from the umbilical vein clots better than blood from the artery and await further data before attempting an explanation.

[1] *Vitamin K*, Philadelphia, 1941.
[2] *Amer. J. Physiol.*, 1936, **114**, 667.
[3] *Biochem. J.*, 1940, **12**, 1554.
[4] *Chemistry & Industry*, 1941, **33**, 618.
[5] *Amer. J. Physiol.*, 1941, **134**, 47.
[6] *Surg. Gynec. Obstet.*, 1941, **72**, 758.

TUBERCULOSIS IN NURSES

As we have previously pointed out,[1] there is good evidence from several sources that hospital nurses more often develop tuberculosis than do comparable groups of women in other occupations. The danger of infection exists not so much where tuberculosis is treated as such and adequate precautions are usually taken, but in the wards of general hospitals, which are structurally unsuited to the treatment of communicable respiratory disease and sometimes contain patients whose condition is undiagnosed or who are untrained in the control of coughing. How far the admission of such patients should be restricted in the interests both of the nursing staff and of other patients is an anxious question for those controlling hospital policy; it is by no means a simple one, because the modern surgical treatment of pulmonary tuberculosis and the claims of teaching both call for such admissions. A new series of observations bearing on the nurses' side of this question has been made by H. L. Israel, H. W. Hetherington, and J. G. Ord[2] at the Philadelphia General Hospital. There were 643 entrants to the training school between 1935 and 1939, mainly aged 17 to 21 years. They were investigated by a tuberculin test on admission, repeated every four months when negative, and by repeated *x*-ray examination of the chest, in which simple screening was mostly used. The number tuberculin-positive on admission was 366 (57%); of the remaining 277 nurses, 48% became tuberculin-positive within four months, 85.9% within one year, and 100% within three years. This hospital has a tuberculosis department in which every nurse works for one month, but she does not enter it during the first six months of her training, and the infections which evidently took place are attributed chiefly to patients in general wards. How many such patients there were and the stage of their disease are not stated, but they are said to be transferred to the tuberculosis department when diagnosed. The annual attack rate of recognizable tuberculosis among all these nurses was 4.81%—an unusually high figure, but attributable in part to the thoroughness of the investigation, because many

[1] *British Medical Journal*, 1940, **2**, 326.
[2] *J. Amer. med. Ass.*, 1941, **117**, 839.

of the lesions were recognized only radiographically. The fact that over 10% in all developed a pulmonary lesion, at first sight an alarming finding, is offset by the benign course which the disease usually followed—again no doubt largely as the result of early diagnosis. There was no significant difference, either in the incidence of the disease, or in its distribution, or in its subsequent clinical course, between those who were tuberculin-negative on admission and those who were positive; this observation, of course, is in conflict with others, particularly those made in Sweden, and is presumably explicable by varying conditions in different countries. Another interesting observation is the frequent occurrence of indefinable illness with either respiratory or gastro-intestinal symptoms, often accompanied by fever; attacks of this kind were doubled in frequency during the four-months period preceding the first positive tuberculin test. It is stated as evidence of the common production of abdominal symptoms that no fewer than sixty-one appendicectomies were done; the significance of this fact would be clearer if we were told in what condition the appendix was found.

No one reading this careful study will dispute that "the student of nursing in the general hospital encounters an unusual hazard from tuberculosis," and anyone responsible for the health of nurses may well feel that some such watchful procedure as this should be adopted in their interests.

ANDROGEN EXCRETION IN PROSTATIC HYPERTROPHY

It has been a favourite notion ever since the sex hormones became available for study that prostatic enlargement in the elderly is due to some disturbance in the normal balance of the hormones controlling that gland. But the nature of the disturbance still remains undecided. It was once supposed that there was a relative excess of oestrogen formation as compared with androgen, and experimental evidence was brought forward to show that such a disturbance would produce prostatic enlargement in animals. From this point of view treatment of prostatic enlargement with testosterone was a logical procedure, and was therefore submitted to careful investigation in a large number of clinics. Although claims for testosterone have been conflicting there can be no doubt that the results have been on the whole disappointing, and it seems improbable that prostatic hypertrophy can be explained simply by a disturbance of the oestrogen : androgen ratio. Other explanations have therefore been brought forward, some implicating the pituitary, but none has as yet received wide acceptance. The development of a more satisfactory view must await the accumulation of far more definite knowledge of the sex hormones in prostatic subjects than is at present available. The gathering of such knowledge is not easy. Androgens cannot be assayed in the circulating blood. Attention must therefore be directed to the androgens and oestrogens appearing in the urine. The relation of these to the androgens in the blood is unknown. The methods of extraction of androgens from the urine are varied and largely unreliable because a part is destroyed in the process. The biological assay of the hormone when finally concentrated is even more inaccurate and the results of different laboratories are often not comparable. A colorimetric method has been developed which estimates a group of steroids including the more important natural urinary androgens, but uniformity of procedure has not been achieved even with this. It is not surprising, therefore, that too few facts have been established about the behaviour of the sex hormones in prostatic hypertrophy for even a tentative theory to be formulated.

Two Dutch workers (Dingemanse and Laqueur[1]), with great experience in the extraction of androgens and oestrogens, have been studying the problem. They had previously satisfied themselves that the methods they employed did effect a quantitative extraction of both androgens and oestrogens from urine. They have examined two groups of elderly men of similar age, the one group having prostatic hypertrophy and the other having none. Contrary to the expectations based on animal experiments, they found oestrogen excretion in the prostatic group to be only 1/4 to 1/5 of that in the group having no prostatic hypertrophy. Androgen excretion, however, was also lower in the prostatic group and the ratio of androgen to oestrogen was not appreciably different in the two groups. Unfortunately the results give no reliable indication of the differences in hormone content in the circulating blood in these groups. The prostatic group was presumably more liable to impaired renal function, which in itself may have accounted for the lower hormone excretion. This point was apparently not controlled.

ADENOMA OF THE BRONCHUS

Adenoma of the bronchus was first described by Mueller in 1882, but was not recognized again until 1927, when Heine found a polypoid tumour at necropsy in the bronchus of a woman aged 45 years. Wheeler and Rabin's classical paper describing twelve cases appeared in 1932, and since then the condition has been recognized by most physicians and surgeons interested in diseases of the chest. It is, however, still a rarity to many, and Foster-Carter's recent paper[2] will play an important part in making it more widely known. His paper is also an important analysis of the clinical features and natural history of some one hundred cases recorded in the literature, and of twenty-two additional examples from the Brompton Hospital. In contrast to bronchial carcinoma, bronchial adenoma occurs more often in women than in men, and also at a much earlier age: the average age at the onset of symptoms in the Brompton series was 28; 70% of the patients were between 30 and 40 years. Many cases of adenoma have been misdiagnosed as carcinoma owing to the histological appearances, which often suggest malignancy. The long duration of symptoms (the average being five years and the longest forty years) is a striking and important feature, and first points to the benign nature of the tumour in so far as uncontrolled infiltration or metastasis is concerned. Because of their position in the large bronchi, however, these tumours are "malignant," in that if left untreated they may cause death; the obstruction they cause is soon followed by infection of a lobe or a whole lung. Haemoptysis is a prominent symptom but rarely fatal; death is usually due to sepsis, not uncommonly from a chronic empyema. The importance of remembering the possible presence of an underlying bronchial adenoma should be plain, and will save many an unnecessary operation on the chest wall when what is needed is direct attack on the tumour itself in order to relieve the bronchial block.

Foster-Carter points out that, histologically, bronchial adenomata fall into two groups: the first group shows a highly differentiated glandular structure, consisting of tubules and alveoli; in the second the glandular formation is less typical and is accompanied by irregular cellular formations. Both, however, pursue the same benign course. In an admirable summary of the evidence the author supports the view usually held that their origin is in the bronchial mucous glands and that they are similar in character to the salivary tumours. Although thought of

[1] *J. Urol.*, 1940, **44**, 530.
[2] *Quart. J. Med.*, 1941, **10**, 139.

as a polyp, the bronchial adenoma is essentially an "iceberg" tumour: at bronchoscopy it is often found that a greater part lies extra- or para-bronchially than within the lumen; only rarely is the intrabronchial projection the main part of the growth. This fact is fundamental in considering treatment, and careful inspection of specimens removed at operation or necropsy illustrates the futility of the minor methods of local attack, such as attempts at bronchoscopic removal or exhibition of radon. Foster-Carter's analysis of the results of these methods leads him to recommend extraction by bronchoscopic forceps and application of radon even up to three or four times before radical extirpation is considered. Unfortunately the use of radon is often followed by stricture formation and always by great increase of sepsis. As the excellent results of radical treatment (dissection lobectomy or pneumonectomy) become more widely recognized, and the low mortality associated with it is appreciated, it will be employed oftener and earlier, before advanced sepsis and years of illness have sapped the patient's powers of recovery and made the task of the surgeon more difficult.

CAMPAIGN AGAINST RHEUMATISM

The Empire Rheumatism Council has completed the fifth year of its campaign, and although the war, which affects every humane activity, has delayed, it has not thwarted its plans. Lord Horder, chairman of the Council, writing in the fifth annual report, states that, viewed in the light of the vast events which have shaken the world, the attention the Council has won for a long-neglected problem of public health gives reason for reassurance. One important part of the duty of the Council is already approaching fulfilment—namely, a survey of the treatment of rheumatism in the present state of medical knowledge and a demonstration of how action on a scale comparable with that taken against other social plagues could effect a great and prompt reduction in the number of lives now wrecked by its ravages. The task facing the Council is to persuade the community, working through the appropriate authorities, to take such action. "The time to plan against rheumatic disease," says Lord Horder, "is now, even if some of the necessary measures must be postponed until peace returns." To-day only a small proportion of sufferers can obtain in the early stages of rheumatic disease the right diagnosis and treatment which would save a very great proportion from becoming disabled. It is by no means unknown for members of an approved society which gives rheumatism treatment benefit to be deprived of that benefit because they cannot incur travelling expenses and the loss of time in reaching a distant treatment centre. In many areas the difficulty of getting advice and effective treatment is the great drawback.

The Council's plans for research into aetiological factors have suffered very serious checks because one laboratory was taken over for national purposes and another was destroyed by enemy action; nevertheless, valuable work has been carried out, particularly by the Naval Research Foundation. Clinical research has been gravely hampered by lack of treatment centres which can undertake investigations with the necessary controls, but it is hoped that as new centres are established greater progress will be made. Lord Horder recalls that at the first meeting of the Council he had said it would justify its existence by bringing that existence to an end as soon as possible. The date for the winding up of the Council will be the date on which rheumatic disease is brought under control, effective treatment made available for all, and research, if not yet successful in all its quests, sufficiently endowed for any tasks remaining to be done. The threshold of the first objective has been reached, but the second objective will require a long term. The address of the headquarters has been changed from the Temple to 326, Finchley Road, London, N.W.3.

RIBOFLAVIN REQUIREMENT OF MAN

The importance of riboflavin in human nutrition has been established through work on experimental ariboflavinosis and from clinical evidence. The chief symptoms of ariboflavinosis are cheilosis, ocular lesions, seborrhoeic dermatitis, and characteristic glossitis.[1 2 3 4] Most of these symptoms clear up readily when treated with riboflavin; the ocular lesions, if not too advanced, also yield to the treatment. The daily dose of riboflavin used by different workers to bring about cure ranges from approximately 2 mg. to over 50 mg. The lower quantity was employed successfully by Sebrell and Butler[1] in the treatment of their experimental "cheilitic" cases. This would indicate that the requirement for prevention of symptoms of ariboflavinosis is somewhat below 2 mg. a day; the optimal requirement may be higher.

So far little work has been done to establish the human requirement for riboflavin. From Emmerie's[5] measurements on the excretion of normal adults it seems that about 2 mg. a day is the usual intake. Computations based on the amount of riboflavin in foodstuffs[6] also indicate a daily intake of about 2 mg. In a recent investigation on the urinary excretion of this vitamin by subjects living on controlled diets Sebrell, Butler, Wooley, and Isbell[7] arrived at the conclusion that 3 mg. per day or 0.04 to 0.05 mg. per kg. of body weight is enough for the adult. They placed ten women on diets deficient in riboflavin and estimated their urinary output of the vitamin at varying levels of intake. Two criteria were used for assessing the daily requirement: (*a*) the amount of intake that was needed to give a urinary output of the magnitude seen in normal individuals, and (*b*) the quantity ingested that caused a sudden large increase in the daily excretion as the intake was gradually raised. The microbiological method of Snell and Strong was used for the analysis of riboflavin. This method seems to work very well with most materials, and gives values which agree closely with the fluorimetric method.[8] Recently, however, two groups of workers[9 10] have found that blood and wheat flour contain substances with a stimulating effect on the *Lactobacillus casei*. Whether or not urine also contains such substances remains to be proved. Another point that needs to be mentioned in connexion with this work is the appearance of cheilosis in the majority of subjects during the depletion period and their cure after the administration of riboflavin. This confirms the previous observation of Sebrell and Butler. It will be remembered, however, that Smith and Martin[11] were able to cure cheilosis in patients by giving them vitamin B_6 while they were taking a riboflavin-deficient diet. One of their cheilitic patients had a dietary history that precluded any suggestion of riboflavin deficiency. The cause of this discrepancy awaits further investigation: possibly cheilosis of a very similar kind is a symptom of lack both of vitamin B_6 and of riboflavin.

[1] *Publ. Hlth. Rep.*, Wash., 1939, **54**, 2121.
[2] *J. Amer. med. Ass.*, 1939, **113**, 1697.
[3] *Publ. Hlth. Rep.*, Wash., 1940, **55**, 157.
[4] *J. Amer. med. Ass.*, 1940, **114**, 2437.
[5] *Acta brev. neerland.*, 1937, **7**, 71.
[6] *Nutr. Abstr. Rev.*, 1940, **9**, 795.
[7] *Publ. Hlth. Rep.*, Wash., 1941, **56**, 510.
[8] *J. Assoc. official Agr. Chem.*, 1941, **24**, 413.
[9] *Proc. Soc. exp. Biol.*, N.Y., 1941, **46**, 405.
[10] *J. biol. Chem.*, 1941, **141**, 325.
[11] *Proc. Soc. exp. Biol.*, N.Y., 1940, **43**, 660.

PELLAGRA IN GENERAL PRACTICE IN NORTHERN IRELAND

BY

JAMES DEENY, M.D., M.Sc., M.R.C.P.I., M.R.I.A.
Lurgan

Few cases of pellagra have been reported from Ireland. Before 1935 only three were recorded, and since then the disease has not been mentioned in medical literature. The following table gives deaths from pellagra registered during the five-year period 1935-9.

	Eire (Population 2,934,000)			Northern Ireland (Population 1,281,000)		
	No.	Age	Sex	No.	Age	Sex
1935 ..	1	75	Male	—	—	—
1936 ..	1	60	,,	—	—	—
1937 ..	—	—	—	—	—	—
1938 ..	—	—	—	—	—	—
1939 ..	1	70	Female	1	15 months	Female

In Northern Ireland, where the industrial and rural labouring classes show such an abundance of deficiency diseases, a greater incidence of pellagra might be expected. The occurrence of cases resembling pellagra confirmed this view. A series of 16 are here described. Many patients showed pellagrous signs and symptoms complicated by other deficiency diseases. They are not included in the series.

Case Histories

Case 1.—A spinster aged 40. Alternating diarrhoea and constipation for nine years. Pruritus with induration and pigmentation of skin. Was nervous, anxious, and had insomnia. Spring and autumn exacerbations. Had numbness, tingling, and burning pains in feet, arms, hands, and legs, leucorrhoea, proctitis, and burning sensation in oesophagus. Became ataxic and complained of sore mouth. With nicotinic acid treatment she became more ataxic, and in addition spastic, requiring vitamin B_1 injections. Complete recovery, save for slight mental symptoms, which are persisting.

Case 2.—A labourer aged 45. Since early youth has suffered from roughness and itchiness of the skin, which was thick, papular, dry, and desquamated. More severe at the change of seasons and on exposure to heat or sun. Arms, forearms, thighs, legs, chest, dorsum of hands, and face were the parts affected. He had a sore tongue and a bad taste in his mouth, and complained of "stomach trouble," angular stomatitis, flatulence, constipation, and haemorrhoids. He was dull, depressed, and slow of speech and thought. Felt cold acutely and complained of loss of power and strength in hands. Nicotinic acid caused rapid improvement.

Case 3.—An unemployed man. Itching, burning, papular erythema on lower abdomen and upper parts of thighs and scrotum, recurring each spring for the last four years. Pruritus disappeared within thirty-six hours. Cured in ten days.

Case 4.—A quarryman aged 52. Recurrent "illness" each spring for years. Intermittent diarrhoea, vague abdominal pains and cramps, soreness of mouth, dry inelastic skin, loss of appetite, and asthenia. Recovery.

Case 5.—A bus driver aged 29. Papules on face and neck, coalescing to cause swelling, induration, burning, itching, and exudation of clear yellow fluid, forming crusts. Distribution: face, temples, hair margins (forehead remaining free), and back of neck. Annual spring recurrence for eighteen years. Skin sensitive to sunlight. Nicotinic acid caused cessation of itch, disappearance of induration and swelling, and healing. Improvement in health and activity.

Case 6.—A machinist aged 29. For several years has had a rash on dorsum of hands and feet, neck, and face (butterfly wing), and this year on arms, back, thighs, and perineum. Begins as erythema, becomes slightly papular, and then desquamates. Rash starts in the late spring and lasts until autumn. Sensitive to sunlight. Has vague abdominal pains associated with frequent attacks of diarrhoea and small ulcers in mouth. Ulcers had a yellowish base and surrounding inflamed area. The tongue was cherry-red, smooth, and blistered. Complained of numbness of hands and feet. Was obese, depressed, and felt out of sorts. Ulcers were improved in twenty-four hours and cured in five days, and itching disappeared in two days. Recovered in three weeks.

Alcoholic Cases

Case 7.—A linen-weaver aged 82. Developed recurring dermatitis three years ago. Erythema, papular formation, induration, exfoliation, weeping, and crusting. Also had sore mouth, constipation, indigestion, and abdominal cramps. Dry, withered, cherry-red tongue. Pruritus, insomnia, and depressive mental changes developed. Bed-ridden six months. Completely cured and activity recovered.

Case 8.—An Army pensioner aged 45. Each spring for five years developed an erythematous rash on hands and forearms. Skin pigmented and slightly papular. Crops of bullae containing dark blood-stained fluid appeared and burst, leaving raw coalescing areas. A "wet" case. Nicotinic acid cured condition in ten days.

Case 9.—Unemployed man aged 58. Papular erythematous eruption. Indurated itching papules on a background of reddened pigmented skin. Nocturnal pruritus and constipation. Scratching caused ulceration of the papules. Two previous attacks. Complete recovery.

Case 10.—A labourer aged 60. Dermatitis on scrotum and dorsum of hands and arms. Annual attacks for several years. Erythema, swelling desquamation, weeping and itchiness, exudate on scrotum. Rapid recovery.

Cases associated with Senility or Chronic Illness

Case 11.—A farmer aged 82. Two years ago developed erythema on breast, spreading to legs, shoulders, axillary regions, temples, scalp, thighs, buttocks, and dorsum of hands. Characterized by pruritus, formation of papules, atrophy, and heavy pigmentation. More severe when skin was warmed by sun or heat. Suffered from insomnia, indigestion, flatulence, and constipation. Pruritus disappeared in three days with nicotinic acid. In one month gained weight, felt stronger, and could walk much better.

Case 12.—A housewife aged 50. Generalized dermatitis from varicose ulceration of legs. Erythema, pruritus, exfoliation, and indurated papular ulcerated areas of legs and arms. Distress and insomnia from pruritus. Lost weight, became anaemic and debilitated. Treatment unsuccessful until nicotinic acid was employed, when condition improved and all skin lesions cleared up excepting some varicose areas. Relapse later.

Case 13.—A housewife aged 49. History similar to that of Case 12. Dermatitis recurring in the spring and autumn for many years. Complained of indigestion, stomatitis, angular stomatitis, sore tongue, and constipation. Was anaemic, weak, and undernourished. Now completely recovered on nicotinic acid.

Case 14.—A housewife aged 29. Good diet. Developed intractable diarrhoea following puerperal sepsis and phlegmasia alba dolens of both legs from confinement eleven months before. Had also a papular erythematous eruption on dorsum of both hands and on both breasts. Suffered from nocturnal pruritus and mid-dorsal tenderness. Albuminuria and slight mitral incompetence. General health poor. Diarrhoea and dermatitis cleared up with nicotinic acid.

Case 15.—A farm housewife aged 74. Frail feeble old woman. Chronic diarrhoea for one year. Had had several attacks of sore mouth, angular stomatitis, chronic blepharitis, hyperkeratosis of alae nasae, incipient cataract of both eyes, and scaly dermatitis on both legs. Diarrhoea ceased completely and skin was improved after nicotinic acid, but there was no change in the angular stomatitis, blepharitis, or hyperkeratosis.

Case 16.—A machinist aged 24. Operation for pelvic abscess two years previously, resulting in abdominal sinus, discharging for eighteen months. Attacks of diarrhoea began eight months ago, and became constant. Cleared up in one week with nicotinic acid.

Remarks

Experience gained in collecting this series leads one to believe that in Northern Ireland, at any rate, pellagra is seldom suspected, usually unrecognized, and in milder forms relatively common. The clinical picture is often so indeterminate that many pellagrins are incorrectly diagnosed as suffering from neurasthenia, dyspepsia, or eczema. Now that a specific curative agent is available such errors may be of serious consequence.

The diets of most of the subjects were inadequate or unbalanced. Dosage of nicotinic acid was usually 150 to 200 mg. (50-mg. tablets) daily. A few cases required up to 400 mg. each day before satisfactory results were obtained. Some persons experienced unpleasant reactions.

I wish to thank Dr. F. Prescott and Dr. J. J. Rogan for their help, and Roche Products Ltd. and Burroughs Wellcome and Co. for supplies of nicotinic acid.

THE ROYAL COLLEGE OF SURGEONS AND ITS MUSEUM

STATEMENT ON FUTURE POLICY

Since the serious damage inflicted on the Museum by enemy action the Council of the Royal College of Surgeons of England, through its Museum Committee, has been actively engaged in salvaging and caring for such parts of the collections as have been spared. This task has involved the dispersal of the surviving specimens to some fourteen places of storage within a radius of 70 miles of the College, where they may be considered as safe as can reasonably be estimated. The rescue of those preparations which have suffered damage and their repair have also been actively undertaken, and still continue. The supervision and care of the specimens in their temporary storage quarters provide constant occupation and responsibility.

Plans for Reconstruction

The Committee has also been continuously engaged in considering the all-important question of reconstruction. The Museum, and especially the Hunterian Collection, has always been the proudest possession of the College, and its restoration is regarded by the Council as its most weighty responsibility. The questions involved will take some time for solution, but it may now be stated that it is the intention of the College not only to restore, as far as that may be possible, those parts of the collections which so admirably illustrated the Hunterian tradition, but especially to regard the needs of the present and future and so to plan the restoration as to embody the best features of other existing museums and to introduce such new features as may enhance the usefulness of the Museum in the study of surgery and its ancillary branches for years to come.

The College is now anxious to proceed with the rebuilding of its collections. In this connexion the College wishes to express its sincere thanks, both to bodies and to individuals, for the several offers that have been made of specimens and collections of specimens. The College is also deeply indebted to those who have sent gifts of money to help in the task of preservation and reconstruction, and especially the American College of Surgeons for its very generous donation in keeping with the help so readily provided for the Library and Research Laboratories by the Rockefeller Foundation.

New Material from Donors

In view of the extensive damage to its buildings, and the serious depletion of the staff, the College is not at present in a position to deal with any considerable accession of material that might be sent to the Museum in Lincoln's Inn Fields. In any event it is considered advisable, for purposes of safety, to send newly acquired material to the dispersal centres. As storage jars and other receptacles, preparations, solutions, etc., are in very short stock, and as transport is so difficult, these movements must be kept to the minimum. Arrangements have, however, been made to deal with suitable specimens that do happen to arrive. With dry specimens the problem is not so difficult, and the Assistant Conservator is particularly anxious to receive all types of human osteological material—skeletons, skulls, disarticulated bones, and "half-sets" should be sent to the College at any time and will be most welcome. With regard to fresh pathological material the College will be grateful if prospective donors who acquire specimens of interest and importance will be good enough to preserve and earmark them for the College, but will at the moment retain them in their keeping until the College is in a position to receive them. It would be most helpful if intending donors would write to the Assistant Conservator explaining precisely what material they have to offer. Their gift would then be registered so that the specimen could be called in when convenient. The Assistant Conservator will always be glad to give advice and help about the preservation of material destined for the College. It is also intended to invite the various Sections of the Royal Society of Medicine each to appoint one of their members to organize the collection of specimens in his own particular subjects. This invitation will be made to the sections concerned, and the President of the College proposes to attend sectional meetings personally for this purpose. With regard to those pathological conditions which are rarely found in this country, steps have already been taken to secure the collaboration of friends and well-wishers in all parts of the Empire, as well as in countries such as Egypt, in collecting and setting aside for the College suitable specimens which can be received at an opportune time.

As soon as better arrangements can be made and the normal channels reopened a further statement will be issued.

LARGE WHITE KIDNEY AT THE FILMS

[FROM A CORRESPONDENT ABROAD]

In general practice the disease often known as "large white kidney," a particular form of chronic inflammation of the renal tissue, is fortunately uncommon. It is one of those disorders that can often be correctly diagnosed at sight, especially when as usual characterized by pallor, bloodlessness, and oedema of the face and conjunctiva. It occurs as a rule in children and in adults on the hither side of middle age. One cannot help regarding it as a curious circumstance that no comment seems to have been made in the medical press on the frequency with which the faces of film actors—men, women, and children alike—when projected on the screen present all the appearances of large white kidney in its early or middle stages. Colour films apart, no hero or heroine of the films presents any sort of a natural complexion, owing of course to the exigencies of the heavy make-up employed. In tint and texture their faces in repose appear expressionless, a little puffy, drab, pallid, and suety—or, if these terms offend, they may be said to present an Italianate and waxy *morbidezza*—and are, in fact, very similar to the facies of the disease under consideration. Further, the make-up imparts a puffiness to the cheek, obliterating the little lines and folds in the skin that give its individual character to the human face in its natural state, and which are equally obliterated by the oedema occurring in large white kidney. As for the oedema of the conjunctiva so common in renal disease, the somewhat sickly close-ups of film heroines who have to register woe and to produce a slow trickle of tears—tears composed, so experts tell us, of glycerin in order to keep the slow trickle slow—commonly show a well-marked oedema of the ocular conjunctiva. The same thing is true, though in a lesser degree, of the heroine's eyes in the prolonged and nauseating close-ups of succulent inosculations between the two sexes that form so large a fraction of the film fan's fare. Here one supposes that it is joy and not sorrow or nausea that produces the bright and watery eye; whereas on those occasions when heroine kisses heroine the process is reduced to a mere peck, the emotions are not engaged, and the question of conjunctival oedema does not arise.

When considering the larger and smaller children who are film stars the observer is again impressed with their greasy pallor and the frequency with which their pasty cheeks are round and bulging, their eyes small and sunken—features charac-

teristic of large white kidney. But not, it is only fair to note, of this complaint alone, for pictures and plaster casts of cherubs represent them with the same bag-like cheeks and bulging faces; yet it is clear that cherubs, having no bodies, cannot be suspected of any form of renal dysfunction. It is, of course, a commonplace to note that these young film stars have voices that are nasal and high-pitched to a degree that is mercifully denied to the common run of children. It does not seem possible to correlate these raucous voices and renal disorder; but any medical student anxious to study aegophony need hardly go further than the nearest cinema showing a child star.

Medical men attending cinemas will no doubt find many other problems inviting medical diagnosis unrolled before them, if they keep their eyes open, to be considered if interest in the film flags. For example, why are the lips of the actors always so unhealthy in tint? Light grey, dark grey, faintly purplish, never in agreement with the rest of the complexion, are these lips to be accounted for by anaemia, or by drug addiction, or by chronic venous congestion however caused, or by use of the wrong lipstick, or by the discoloration of the whole body due to the excessive consumption of silver salts for the treatment of epilepsy? To the writer this very rare condition of argyria has often seemed to explain the observed complexions even better than renal disease does. But perhaps the producers will some day succeed in producing uncoloured films in which the actors will resemble normal human beings in both face and feature. When that day arrives the arguments developed above will prove otiose.

A. J. J.-B.

STANDING ADVISORY COMMITTEE ON TUBERCULOSIS

This committee was established at the request of the Minister of Health in December, 1939. The membership reflects some of the leading organizations interested in the disease: National Association for the Prevention of Tuberculosis, Sir Percival H.-S.-Hartley (chairman) and Dr. Harley Williams (secretary); Joint Tuberculosis Council, Dr. D. A. Powell and Dr. J. B. McDougall; Tuberculosis Association, Dr. G. T. Hebert and Dr. N. Lloyd Rusby; Society of Medical Officers of Health, Dr. J. Ferguson and Dr. Ernest Ward; London County Council, Dr. W. Allen Daley (represented by Dr. A. Middleton Hewat); Ministry of Health, Dr. Norman F. Smith; Department of Health for Scotland, Dr. J. Macfarlane attends as an observer on behalf of Dr. A. Davidson, Chief Medical Officer. Fourteen meetings have been held and over a hundred topics discussed. The committee does not take independent action, but makes recommendations through the Chief Medical Officer to the Ministry of Health. Many of the more important subjects, such as the examination of recruits, the application of mass radiography, rationing, pensions for the tuberculous discharged from the Services, and the shortage of nursing staff, have been considered over long periods.

As a result of the committee's deliberations, more attention has been paid to the urgent question of the shortage of staff in hospitals and sanatoria. Another recommendation was that recruits for the Services should be examined by miniature radiography, although Lord Horder's Committee later decided that this was impracticable owing to lack of apparatus and personnel. Recently the committee urged that in the event of rejection of an original application for a pension for tuberculosis, the applicant should have the right of appeal to an independent tribunal, of which a tuberculosis expert should be a member.

Rationing as it affects the tuberculous has been repeatedly discussed. With regard to the Sale of Milk (Restriction) Order, the committee takes the view that "active tuberculosis" should, for this purpose, be taken to cover all tuberculous patients on the dispensary register. The committee recently advised that the medical examination of young women called up for industry and the various Services should include a radiological examination of the chest, and recommended the acquisition of the necessary apparatus. If it should prove impracticable to examine all persons involved, it was suggested that a start should be made with entrants to the A.T.S., W.R.N.S., W.A.A.F., and similar bodies.

The secretary (Dr. Harley Williams, Tavistock House North, Tavistock Square, W.C.1) will be glad to hear of subjects urgently in need of discussion.

Reports of Societies

SCIATIC PAIN

At a meeting of the Sections of Neurology and of Orthopaedics of the Royal Society of Medicine on January 17, with Col. GEORGE RIDDOCH in the chair, the subject of discussion was sciatic pain.

Neurological Aspects

Dr. J. PURDON MARTIN said that confusion had arisen largely because of disregard of certain facts and inexactness in terminology. By sciatic pain he meant pain referred to the course and distribution of the sciatic nerve. The cutaneous distribution of the nerve was limited to areas below the knee, but it gave motor and deep sensory innervation to the muscles on the back of the thigh and to those on the back and outer side of the leg. Sciatic pain was typically a deep pain, and was felt in the muscles. There appeared to be tenderness along the course of the nerve, but it was doubtful whether this really indicated that the nerve was tender. The muscles were tender, and he had found that the muscles on the outer side of the leg might be tender when there was no tenderness of the common peroneal nerve at the neck of the fibula. He thought that the pain excited by extension of the limb was probably due to stretching of the hyperalgesic muscles rather than of the nerve. It had been attributed to stretching of the inflamed nerve, and even to adhesions; but in some cases of referred sciatic pain it could be abolished by anaesthetization of the exciting focus, so that it could not be due to inflammation or adhesions.

There were two groups of causes of sciatic pain: (1) disturbances affecting the nerve itself or one of its roots; (2) pain referred into the distribution of the sciatic nerve. He discussed the latter first because it was the more common. Mackenzie's conception that referred pain was due to "an irritable focus in the spinal cord" had stood the test of time and had received support from Sherrington's demonstration of a "central excitatory state" affecting motor cells in the cord. The cells concerned with referred pain were those in the posterior horn of the grey matter, and they formed a continuous column which was not segmented. Referred pain was not, strictly speaking, segmental, though it might be so with a moderate stimulus. All the structures within the affected territory were hyperalgesic. Referred pain could not impair function or abolish reflexes. The chief sources from which pain was referred into the sciatic distribution were from arthritis and peri-arthritis of the hip and lumbar spine. Malignant disease of the lumbar spine might cause sciatic pain at a time when no abnormality could be made out in the *x*-ray films, and as there was at that stage no impairment of the functions of the sciatic nerve, the pain was probably a referred pain from the diseased bone. The treatment of referred sciatic pain was to treat the primary focus. Harris was using the method of local injection in suitable cases twenty years ago, employing quinine urea, and, later, very small injections of alcohol, and in the last few years Mr. Kellgren, using novocain preparations, had made this method his own.

Disturbances which might affect the nerve itself or its roots were many. The protruded nucleus of a broken intervertebral disk usually caused an irritation of a single root. This was undoubtedly the same as the "radicular sciatica" of Dejerine and others, and the exponents of protruded disks had not so far added anything to the syndrome described by Dejerine. The distribution of the pain and any sensory or reflex impairment indicated which root was affected. To decide what the lesion was they were dependent upon signs elsewhere, special investigations, and the history. The pain in the back was probably a referred pain from the damaged disk or ligaments under stress. The simple *x*-ray appearances and the cerebrospinal fluid findings were not very helpful in differential diagnosis, and they had to use *x*-ray examination with contrast media; but there must be some cases in which no constriction of the theca was produced.

Finally, was there such a thing as sciatic neuritis—that is, interstitial neuritis in the sciatic nerve? The answer must be "Yes." There was little recent pathological confirmation, but

a similar condition occurred in many other nerves, and Duel and Ballance had found in the facial nerve thickening of the interstitial tissue and scarring of the sheath. In the sciatic nerve the outstanding symptom was pain, and there were signs of interference with the nerve function. The signs and symptoms in these cases were not localized to the distribution of a single root, but there were usually signs that the inflammation was more widespread, and the course of the cases did not correspond with that described in cases of protruded disks.

Orthopaedic Considerations

Mr. V. H. ELLIS said that, although some writers maintained that sciatic neuritis did not occur, he could not think that this was true, but the condition was not common. Pain due to irritation of the nerve or its roots from without was attracting attention owing to its proved frequency, its more definite pathology, and its successful treatment. It was often said that sciatic pain could be caused by pressure on a nerve root, but pressure on a nerve usually produced paralysis or anaesthesia, or both. In order to obtain pain with pressure on the nerve there must be movement, and this might have some bearing on the question why sciatic pain was intermittent and why certain forms of treatment gave relief. Probably most cases of sciatic pain were of the referred type. Sciatic pain due to conditions arising within the nerve or its central connexions was probably less frequent than was formerly supposed.

Sciatica could nearly always be relieved by complete immobilization of the lumbar spine. Treatment by injection was useful if the affected ligament could be found, but this was sometimes difficult. Most methods of treatment appeared to record some success, although recovery rather than cure might be the truer word. The speaker had seen what appeared to be permanent relief follow the use of a plaster jacket for immobilization and also the simple treatment of the affected limb in recumbency by a strapping extension, using a tilted bed and a 10-lb. weight, but if this did not produce relief within a few days it was useless to continue the method. Although manipulation of the spine under anaesthesia gave relief in a proportion of cases, he thought it a dangerous procedure unless the possibility of ruptured disk was excluded, because manipulation might increase the protrusion and bring about definite symptoms of nerve involvement. The removal of a ruptured disk might relieve the situation, but the faulty mechanics which caused the original lesion was still present.

Dr. F. A. ELLIOTT said he had arranged to see every case of sacro-iliac pain admitted to three general hospitals. Out of 115, the pain was of true sciatic distribution in only 84. (Pain limited to the posterior cutaneous nerve of the thigh was not regarded as sciatic.) In 24 of these latter cases the diagnosis was obscure; in the remaining 60 the diagnosis was as follows: fibrositis in 16; neuritis in 3; radiculitis in 2; osteo-arthritis of L4 and L5 in 4; osteo-arthritis in 8; sacro-iliac arthritis in 10 (tuberculous in 2, subacute and of obscure origin in 5, with homolateral sacralization in 3); Pott's disease of L4 and L5 in 3; malignant secondaries of L4 and L5 in 7; tumours of cauda equina in 3; herniation of nucleus pulposus (lumbo-sacral) in 2; protrusion of intervertebral disk (L2) in 1; and malingering in 1. No cases of sacro-iliac strain were met with. He added that there was a tendency for long-standing sciatica to lead to a neurosis which might be a hysteria or a true anxiety state. This might be partly due to the long-standing pain, but possibly the many long discussions at the bedside to which the patient had listened, while the doctors made it evident that they were not sure what was the matter with him, brought about an anxiety which led the clinician to label him a neurotic.

Points in the Clinical Picture

Mr. J. PENNYBACKER was in agreement with Dr. Martin, and was glad that he had insisted on an accurate diagnosis. He himself had had sixty cases during the past two and a half years in which the lesion had been dealt with by operation. There were several points in the clinical picture which needed a little more emphasis. Diagnosis usually rested on the history, which began with an injury or with a strain caused by bending to pick up something or to lift a heavy weight. The patient might be so much obsessed by the sciatic pain that the fact of the strain was only elicited on careful inquiry. He had been surprised in some cases to find practitioners who had known that there was a traumatic condition dismissing the back pain as lumbago. The finding of abnormal neurological signs would vary within narrow limits according to the diligence of the surgeon. One of the commonest signs was muscular weakness on the affected side. Slight degrees of wasting were also found on making comparative measurements. Sensory loss was interesting because it was of a relatively benign order. The spinal fluid was normal or, if abnormal, characterized only by a slight increase in protein. As to x rays and the use of contrast media, lipiodol formerly did not cause trouble, but within the last year or two a number of cases of severe reaction had been recorded. Air might seem to be the ideal medium, but his own experience had not been very convincing. The visualization of this lesion with air depended a good deal on the enthusiasm of the radiologist. It was much easier to see the lesion by the extra- than by the intra-dural approach. The vast majority of cases of sciatic pain responded to rest. If rest in bed was not possible and the pain was not disabling, the patient could be relieved by an extension plaster jacket to the point of getting on with his work. It was only if the response to rest or immobilization was not satisfactory that operation should be advised. He warned against indiscriminate manipulation of the spine in these cases, because the results might be serious. There were cases which had been relieved by that procedure, but if damage might ensue he wondered whether manipulation should ever be done. Finally, he pleaded for more collaboration between neurologists and orthopaedists, with a follow-up of cases.

Dr. P. P. DALTON said that a decade ago "sciatica" was a common diagnosis, but the subject of discussion that day was "sciatic pain"—evidence of a doubt as to the exact condition. The message of irritation and of pain was carried by the vegetative nervous system, and there was considerable evidence of the involvement of that system in these cases. He mentioned the frequency with which the referred pain was associated with other symptoms of disturbance of the nervous control of the blood vessels, and the occurrence of a distant vasomotor contraction when injections were made. The pattern of painful spots was commonly similar to that of the underlying deep blood vessels, and the oozing of blood from needle penetrations was far more frequent than one might expect.

Mr. L. S. MICHAELIS, as an orthopaedist in private practice, had been impressed by the frequency with which there was no history of trauma and an attack of sudden coldness was the reason for the pain. He had treated patients with mild analgesics to relieve pain and with vitamin B by mouth. He argued for a more simple treatment in these cases. Dr. JAMES CYRIAX said that a patient with sciatica always had pain on sudden movement, and if it could be shown that it was due to stretching the nerve, then obviously the nerve sheath was involved. He believed that 85% of patients who complained of pain down the leg were in fact suffering from referred pain. Group Captain SYMONDS, speaking of Service patients, said that in people of the age group with which he had to deal prolapsed disk was by far the commonest cause of sciatica. He was not prepared at the moment to advise operation; he would try the effect of rest, and if recovery did not take place within a reasonable period he would invalid them out.

Dr. HENRY WILSON said that at one London hospital the house-physicians had referred to the slightly abnormal mental condition of patients suffering from sciatic pain. An explanation of this was that a patient who had to remain inactive over a long period was likely to develop signs of irritability. Such patients should be encouraged to employ their minds and their upper limbs. Major KERSLEY referred to a typical case of prolapsed intervertebral disk in which the patient was put in a plaster cast as a preparation for operation, and the complete immobilization cured his sciatica. Mr. HARVEY JACKSON said that the onset of the trouble in a proportion of these patients was unassociated with any injury. In his view there was no way of differentiating between a truly neuritic pain and a lumbar pain.

Local News

SCOTLAND

Post-war Hospital Problems

On the recommendation of his Advisory Council, the Secretary of State for Scotland has appointed a committee to report to him on certain aspects of the application to Scotland of the Government's post-war hospital policy as announced in Parliament on October 9, 1941. The chairman of the committee is Sir Hector J. W. Hetherington, LL.D., and the other members are: Mr. D. A. Anderson, Mr. James Cook, Mr. J. M. Erskine, Sir John Fraser, F.R.C.S.Ed., Mr. Neil M. Gunn, Mr. Charles Murdoch, Mr. David Robertson, Miss Beatrice Rose, Mrs. C. McNab Shaw, Mr. J. M. Vallance. Communications should be addressed to the secretary of the committee at St. Andrew's House, Edinburgh, 1. The committee's terms of reference are: "To consider and make recommendations within a policy aimed at the post-war development of a comprehensive and co-ordinated hospital service in Scotland on a regional basis as to (1) the future administration of new hospitals built by the Government and now administered by them as part of the Emergency Hospital Service; (2) the arrangements most likely to secure the maximum co-operation between voluntary hospitals, local authority hospitals, and the hospitals referred to at (1) above; and (3) the financial arrangements between voluntary hospitals and local authorities and between voluntary hospitals and patients and contributors best fitted to enable these hospitals to co-operate in the co-ordinated hospital service." The Secretary of State has already consulted interested parties, including the local authorities (through their associations), the Scottish branch of the British Hospitals Association, and the Nuffield Trust's Advisory Committee on the Regionalization of Hospital Services in Scotland.

An Attack on Hospital Waiting Lists

A major step towards the elimination of the long waiting lists for voluntary hospitals will, it is hoped, result from a decision announced by the Department of Health for Scotland after consultations with the Scottish Branch of the British Hospitals Association. It means that practically everyone whose name is on the waiting list of a voluntary hospital becomes eligible for immediate and free treatment, medical as well as surgical, in an Emergency hospital. The decision extends the scheme made twelve months ago whereby some 10,000 beds and the resources of new Emergency hospitals and annexes built for war casualties were made available to ordinary civil patients—provided they were short-term cases, and surgical rather than medical. But the response to the original scheme was relatively poor. Now in order to give it every chance of success the Department of Health has decided to remove all limitations except one: the admission of chronic cases. The scheme has the twofold aim of securing prompt treatment for ailing war workers, as well as the public generally, and of removing the anomaly of having at the same time long waiting lists for voluntary hospitals and empty beds in Emergency hospitals. It will be worked by the voluntary hospitals in co-operation with the Department of Health hospital officers, and its success will therefore depend on the use voluntary hospitals make of it. Doctors can help by referring their patients as quickly as possible to a voluntary hospital, even though there is a long waiting list for that hospital, and also by advising their patients to accept treatment in an Emergency hospital. Under the scheme the Department of Health makes no charge against the patients but receives from the voluntary hospitals a nominal payment of 30s. per patient no matter how long or how elaborate the treatment may be.

J. P. Magnin and A. D. Cánepa (*Rev. Med. Cienc. Afin.* Buenos Aires, 1941, **3**, 45) report their successful results from the employment of adhesive plaster without suturing for closure of the abdominal wall in patients who have undergone appendicectomy. The method was successful even where drainage was necessary, and has been used in over 200 cases.

Correspondence

Delay in the Union of Fractures

SIR,—Prof. T. P. McMurray's article (January 3, p. 8) on delay in union of fractures will undoubtedly receive close attention from all surgeons, orthopaedic and general, engaged in dealing with fractures. His most important point is the fact that after twenty-nine months at war workers have come to the conclusion that fractures generally are not uniting as regularly as they did in civil practice. Prof. McMurray suggests one possible cause of delay in union, and a remedy which in his hands has brought success. The theory that the unpadded plaster is a factor contributing to faulty union will be received with varying degrees of disagreement in some quarters.

For the past half-year I have had under my charge one of the larger collections of ununited fractures. They have been drawn from every part of the British Isles, and the primary treatment varied according to the views of the many different surgeons supervising the early stages. Being confronted with an extremely high percentage of non-union, I immediately made searching investigations for any possible cause. It was natural at the outset to blame faulty technique plus a widespread lack of knowledge in the treatment of fractures. However, it soon became apparent that this view was incorrect, and that too high a number, treated beyond all criticism, were not uniting. It was noted that delays in union in the upper extremity were sharing proportional honours with delays in union in the lower. The finding of a constant factor in error of technique and management proved, on the whole, inconclusive, but, in contradistinction to Prof. McMurray's theory, it seemed that a higher proportion of faulty union occurred in those cases in which adequate immobilization was not maintained for a sufficiently long period of time. In addition the so-called "short guarding plasters" in more than one case contributed to the undoing of good work already done.

Reasons for delay in union in compound fractures were much more difficult to find. Here the great differences in the primary treatment made it impossible to say whether or not such-and-such a fracture should be free of sepsis within certain limits of time. However, it was clearly noted and felt that with adequate immobilization over a long enough period sepsis might have ceased earlier and allowed union to progress; although sepsis, in all fairness, could not be held entirely responsible, considering that it is reasonable to expect a fairly large number of successes in compound fractures.

Attention was next turned to the treatment of these cases. As the duration varied between twenty-six weeks and twenty-six months, the larger number showed dense sclerosis and rounding of the bone ends. Little choice was left except grafting or drilling. Of the remaining cases, in which one would expect union to progress providing satisfactory immobilization was continued, it was found, contrary to previous experience, that union did not progress. Further, a few cases had grafts inserted before admission, and again, contrary to expectation, not one showed success.

The natural conclusion to draw from these facts is that some other unrecognized factor must account for bones not uniting. Prof. McMurray suggests the possibility of the unpadded plaster; this is the only change in the generally accepted standard treatment in recent years. Earlier in his article he points out that since the beginning of the war there has been a higher percentage of sluggish union; this, then, is the date from which the unrecognized factor can be taken to have become operative. Most fracture workers can claim reasonably good results using the unpadded plaster several years before the outbreak of war, and, if a change is noted during the war, it would not seem justifiable to lay the blame entirely on the unpadded plaster. Too many of the cases under discussion have never had this type of plaster at any stage of their treatment and still show faulty union. This would make it seem that perhaps a more likely factor is one arising from war conditions.

Probably the most widespread alterations as the result of the war are changed nutrition and less fresh air and sunlight. The

Americans and Canadians are devoting much time and money to the problems of nutrition, especially vitamins, while we in this country are just beginning to be "nutrition-conscious." The conditions under which my own cases are treated give much support to the idea. It would be well worth while to direct attention to the investigation of diet, open-air orthopaedic centres, rehabilitation, and also to pay much more heed to the soft tissues surrounding bone.—I am, etc.,

G. D. ROWLEY.
Major, R.A.M.C.

Regional Anaesthesia

SIR,—I was most interested in an article on the use of paravertebral injection for obtaining regional anaesthesia, by Dr. N. R. James and Mr. H. W. Burge (December 27, p. 906), and in Mr. Stanley Hillman's criticism of it (January 10, p. 56). Like Mr. Stanley Hillman, I, too, have wondered why it is that a dangerous fall in blood pressure is still alleged to follow the modern subarachnoid anaesthetic, and is given as a reason for discontinuing or abridging the use of one of the safest, most efficient and simple to administer of available anaesthetics. From an experience of over 2,000 cases I find no support for the view that a spinal block achieved by a careful technique and a well-tested solution such as percaine is hazardous in this or any other respect. I find, rather, that insufficient emphasis has been laid on the value of a more widespread employment of this safe and satisfactory form of anaesthesia.

However, if I understand from Mr. Stanley Hillman's letter that in his cases no drop in blood pressure occurred after a "high percaine" for an upper abdominal operation, my experience is somewhat different. It is this: if the solution has made effective contact with the segments of the cord necessary for high abdominal operation, the involvement of the splanchnic innervation to abdominal viscera (5th to 12th thoracic segments) results in vasodilatation in this area and nearly always some fall in blood pressure. But, using the regional subarachnoid block which I have adopted, this lowering of systolic pressure is comparable in every way with that which is met with after "local and splanchnic" infiltration, or after a fully effective paravertebral block. Indeed, while interesting myself with such comparisons, I noticed more pronounced hypotension as a rule took place after local and splanchnic infiltration. Experience with the sphygmomanometer in many of these cases has demonstrated that the low reading need not be regarded with anxiety, but rather as a confirmation that the requisite level has been reached for an upper abdominal operation. I never use vasoconstrictors or cardiac stimulants as routine. An alteration in blood pressure rarely occurs when the spinal injection has been planned for an operation on the intestine or lower abdomen.

The technique for accurate regional anaesthesia with subarachnoid percaine, to which I have referred, was most ably described by Mr. Norman Lake in the *Lancet* (July, 1938). I gave up the "time diffusion" method in favour of that detailed by Mr. Lake, in the first place because it used the two chief factors, specific gravity and anatomical knowledge, to their best purpose, and scientifically reduced variable factors to a minimum; secondly, because in practice it worked as a true regional anaesthesia; and, thirdly, because it required only very small quantities of a particularly non-toxic drug—percaine—to carry out any abdominal operation. Gastrectomies and cholecystectomies have been carried out repeatedly employing only 7 c.cm. of the solution; many similar operations on small subjects have been accomplished with as little as 5 c.cm. of percaine, almost one-third of the amount usually employed in the Howard Jones technique. As the lower limbs are not involved the more noticeable fall in blood pressure associated with the "nipple to toes" type of spinal (to which Dr. James and Mr. Burge probably refer) is avoided. I agree with Mr. Stanley Hillman that spinal percaine, using a careful technique, is safe and efficient in emergency and cold operations, in the upper and lower abdomen, in young and old. Particularly in the old have I found it satisfactory. A most recent example was that of an old lady of 70 suffering from an advanced carcinoma of the caecum, with all the marked cachexia peculiar to this type of neoplasm; the growth was resected, using 5½ c.cm. of percaine. The anaesthesia was ideal from the surgical point of view, and the patient made a good recovery. Pre-operative treatment with omnopon and scopolamine is a great advantage. Pentothal or evipan is certainly most useful in conjunction with spinal percaine, although I did not myself use them as routine.

Apart from the transient and annoying post-operative headache, which, frankly, I still find is the occasional bugbear of percaine anaesthesia, I have never seen any late or permanent ill effects from it. Although every case is not suitable for spinal anaesthesia, I feel that the regional subarachnoid oblique has a very wide field of usefulness and should be employed more extensively. The technique is simple compared with the time-consuming, roundabout, and relatively inaccurate method of obtaining the same purpose by a paravertebral oblique.—I am, etc.,

Gidea Park, Essex. D. LANG STEVENSON, F.R.C.S.Ed.

Endocrine Therapy of Hypertrichosis and Acne

SIR,—In a comprehensive study of acne Hamilton (1941) has reviewed the literature on the treatment of acne with gonadal and gonadotrophic hormones, and as a result has concluded that "the use of oestrogens, which might be expected by some on theoretical grounds (antagonism between androgens and oestrogens) to negate the seborrhoeic action of androgens, has not been attended as yet by any measure of definite success. . . . Claims have been made, but there is no clear or acceptable proof that gonadotrophic (luteinizing) substances are of value in the treatment of acne." This statement by a leading American endocrinologist is in agreement with Dr. Roxburgh's refutation (December 20, p. 890) of Dr. A. P. Cawadias's claim in his Thomas Vicary Lecture that oestrogenic hormone therapy will cure acne; and with regard to Dr. Cawadias's similar claim for oestrogens in hypertrichosis, I can only say that it is quite at variance with my own experience and that of several competent endocrinologists with whom I have spoken.

Dr. Cawadias, however, in his letter (January 10, p. 54) now appears to contradict his previous statement by saying that the method of endocrine therapy as practised to-day is useless, and that there is no hormone for the cure of acne, although there are hormones which cure the varying underlying metabolic conditions of which acne and hypertrichosis are manifestations. I am sure that the endocrine world would be anxious to learn the effective "constitutional treatment" for the common variety of hypertrichosis in young women, which is unassociated with any recognizable evidence of an adrenal tumour, an arrhenoblastoma, or Cushing's syndrome. I note, however, that Dr. Cawadias has warned us that constitutional treatment requires great knowledge of metabolic physiology, so that it may be beyond the attainment of us ordinary men.

I presume that Dr. Cawadias has carried out suitable control experiments in his investigations, for this is highly important in any therapeutic trial, as the following observations will show. Williams and Nomland (1937) treated nineteen patients with acne with injections of sterile water three times a week for eight to eleven weeks; of these nine improved, six improved moderately, and four improved slightly or not at all. Molitch (1938) injected ten cases of acne vulgaris with bland oil three times a week, obtaining improvement in six; and Cornbleet and Barnes (1939) treated twenty-four patients with acne with injections of sesame oil and observed a 50% improvement in seven.—I am, etc.,

St. Bartholomew's Hospital, E.C.1. A. W. SPENCE.

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Marital Tuberculosis Infection

SIR,—I feel that the letter of Dr. V. S. Hodson (January 17, p. 89) should not pass without comment. I will not enter into a general discussion on exogenous or endogenous reinfection as the cause of adult tuberculosis, but would like to challenge one of Dr. Hodson's points. He writes that marital infection with tuberculosis is very rare; in fact, he had only known of one case in fifteen years. When I read his statement I thought of my own patients, and the names of half a dozen families at once in all of which the presumption of marital infection was

exceedingly strong, although, of course, proof was impossible. I have no doubt that more mature reflection and examination of my records would find many more cases.—I am, etc.,

A. S. HALL,
Tuberculosis Officer, Middlesex County Council.

Increase in Tuberculosis

SIR,—Dr. V. S. Hodson (January 17, p. 89) would deny any credit to public health authorities for the improvement in the tuberculosis death rate since 1870. What, then, of the control of tuberculous cattle and milk, admittedly imperfect but nevertheless far-reaching? What of the segregation of infectious cases in institutions or of their better isolation at home under improved housing conditions, or of the quiet, persistent education of patients in hundreds of clinics and sanatoria throughout the country? What, too, of the facilities for early diagnosis? Have not these, all public health measures, played at least a part?

One aspect of his accompanying argument on the origin of adult pulmonary tuberculosis demands, however, more serious consideration. Obviously, in Dr. Hodson's opinion no adult with a positive Mantoux reaction need fear contact with an infectious case. Is this true? If so, then provided all contacts in an adult household react to tuberculin our attempts at isolation are a waste of time and a source of unnecessary inconvenience and embarrassment to the patient and his family. Surprisingly enough, absolute evidence to disprove this view is not easily obtainable. Morbid anatomical studies do not help. A large-scale follow-up of Mantoux-positive contacts over a long period would only be of value if one could arrive at a definition of normal living conditions and normal health—a very difficult matter. It is partly on this latter point—that is, the question of lowered resistance—that the work of Opie, McPhedran, and others in America which sought to establish exogenous reinfection has been discounted. They also did not eliminate the possibility of late primary infection giving rise quickly to bronchogenic phthisis. Despite these criticisms their work has not been entirely shaken.

Marital tuberculosis, where the risk of a massive infection is greatest, does occur not infrequently in the absence of any physical, mental, or economic stress. That it is not more common may be the result of our preventive measures. Incidentally, Griffith and Munro in 1933 reported a case of pulmonary tuberculosis in husband and wife due to a bovine strain of low virulence. Hospital workers, too, are known to be more liable to contract the disease, especially in general institutions, where the unrecognized and unexpected case may be a menace. There is thus a not inconsiderable amount of circumstantial evidence that this type of reinfection may occur. Whilst agreeing that perhaps the majority of adults are reinfected from an endogenous source, I submit that with regard to the remainder the onus lies with Dr. Hodson, and that until concrete proof is given that adult-to-adult reinfection is impossible our present management of tuberculosis should not be relaxed. How many of us (I omit the Mantoux-negatives) would care to share a nightly bed with an advanced, productive case of phthisis? I for one would not, nor, I venture to think, would Dr. Hodson.—I am, etc.,

Chichester. J. E. WALLACE.

SIR,—Dr. V. S. Hodson's statements (January 17, p. 89) as to the infectivity of pulmonary tuberculosis from adult to adult are decidedly controversial. I will only refer to one sentence in his letter—namely: "As to contact as a cause of adult pulmonary tuberculosis, what of married couples of whom one is diseased and the other healthy? I met only one case in fifteen years, and that was of a woman who broke down eight years after her husband died of pulmonary tuberculosis." I gave special attention to this subject in a letter to the *Journal* some years ago (April 28, 1934, p. 777). There I showed that, by only cursory perusal of dispensary records, there were found forty definite cases, all T.B.-positive, in which husband and wife infected one another. It was found that in twenty-one cases the husband was first notified and in nineteen cases the wife. Details of these cases are given in my previous letter. It is also there shown that only 15% of the cases came to light during the first year after the notification of the first partner; while in 70% of the cases a period of two to eight years elapsed between the notifications. In the remaining 15% of cases the intervening period amounted to from ten to twenty-nine years. I am quite sure that other tuberculosis officers could show similar facts were they to look into their records.

It is very detrimental to the efforts of workers in the fight against the spread of tuberculosis when fallacious statements of the kind put forward by Dr. Hodson are allowed to go unchallenged.—I am, etc.,

Uckfield, Sussex. ROSE JORDAN.

Estimation of Haemoglobin

SIR,—Your correspondents have recently drawn attention to the desirability of expressing blood haemoglobin in grammes of haemoglobin per cent. in place of the present arbitrary "100%" systems. While this value has remained constant on the Haldane scale at 13.8 grammes haemoglobin per cent., its meaning on the Sahli scale has varied widely. Originally "100%" was 17.3 grammes per cent., but values of 13.8 grammes and 16.0 grammes are widely used, according to Whitby and Britton (1939). To add to the confusion there is now an instrument on the market for which "100%" equals 12.4 grammes of haemoglobin per cent.

There also seems to be no uniformity in the length of time allowed for colour development in the acid haematin method. So W. Smith (December 27, p. 926) suggests ten minutes for clinical purposes, and others use times up to forty minutes. Newcomer (*J. biol. Chem.*, 1919, **37**, 465) showed that at room temperature (not stated) colour development was 99% complete in forty minutes, 96% in ten minutes, and only 80% in two minutes. In the course of some investigations I have concluded that sixty minutes is necessary and ninety minutes desirable at 15° to 16° C., and am led to suspect that Newcomer's room temperature was higher than mine. The time of standing can be reduced to ten or fifteen minutes, though thirty minutes is preferable, by immersing the tubes in a water-bath at 40° to 45° C. after the blood has been delivered into the 0.1 N hydrochloric acid. Sahli's original "one-minute" method would therefore give too low results when a permanent standard is used for comparison, though the error would be reduced by the time consumed in diluting and comparing. Nevertheless, the intensity of the colour would be increasing during that time, and comparison must be difficult. I have recently carried out a comparison of the haemoglobin content of a sample of blood using (1) the Barcroft blood-gas method, (2) the Haldane haemoglobinometer, (3) the Sahli haemoglobinometer, and (4) a Hellige colorimeter and an acid haematin standard. In the latter two cases the blood was allowed to stand at 15° to 16° C. for ninety minutes or at 40° to 45° C. for thirty minutes, after adding to the 0.1 N hydrochloric acid. When the results were calculated as grammes of haemoglobin per cent., the agreement between the methods was good.—I am, etc.,

Department of Physiology, University of Bristol. C. A. ASHFORD, M.A., Ph.D.

Iron Deficiency in the Community

SIR,—The following information about haemoglobin values of a group of nurses in a small London hospital may be of some interest at the present time. Routine estimations by Haldane's method were made on thirty-six nurses, all doing full-time day or night duty and taking a diet well up to the present average in iron-containing foods. None of them complained of fatigue or malaise. The results during the second half of November, 1941, were: 16 between 68% and 79% Hb; 17 between 80% and 89% Hb; 3 between 90% and 100% Hb.

Thirteen nurses with an average Hb of 79.3% were given iron for one month, either as fersolate tablets, 2 t.d.s., or ferri et ammon. cit., 30 grains t.d.s. Second Hb readings gave an average Hb value of 86.2%. These values were unfortunately not obtained until the iron had been discontinued for a fortnight. Several of the nurses noted subjective improvement since taking the iron, although unaware of any undue fatigue before. These figures, though small and relatively uncontrolled, would suggest that active members of the community on a good average diet as at present obtainable show some degree of iron deficiency, which is remediable by simple iron therapy.—I am, etc.,

London, N.W.1. ELIZABETH WHATLEY, M.B.

"The Obsession of Fibrositis"

SIR,—Flight Lieut. E. J. Moynahan and Flying Officer E. S. Nicholson describe (January 17, p. 65) the "almost uniformly good results" which followed the treatment of over eighty "cases of fibrositis" by infiltrating the tender spots with injections of procaine. The authors, in their introduction, admit that the aetiology and pathology of fibrositis remain indefinite and that many students of rheumatism in America have doubted "its existence as a clinical entity." However, having noted these points, they firmly announce their decision to use fibrositis as a covering term for "pain, stiffness, and soreness [all subjective symptoms] which are sometimes associated with spasm of the related muscles." Nodules apparently no longer matter—"whether present or absent is of little diagnostic significance." (What *will* the masseuse do then, poor thing?) The nature of the pain is of little consequence—it may be "sharp or dull, continuous or intermittent, easily located or diffuse." No account is taken of the duration of the symptoms, but in the few "typical cases" described the period seems to range from a few days up to two years.

On this theory of fibrositis almost every person with symptoms of pain, stiffness, and soreness becomes, in the absence of any collated organic lesion, a "case." The writers admit that patients with this "condition" must be very common, and they quote a statement to the effect that "in Scotland alone 225,000 new cases of fibrositis are estimated to occur each year." As the annual number of births in that country averages about 80,000, it would seem that the number of "cases of fibrositis" demanded by the theory is several times greater than the number of persons available to "take the condition." This new doctrine of a free-floating disease suggests that the theory of fibrositis has an affinity with the branch of study known as "occultism."

The problem of incapacitating pain, stiffness, and soreness (P.S.S.) is best approached by discarding the word "fibrositis" and referring to this syndrome by the notation "P.S.S." This releases us from dogma and enables us to observe our patients freely and sensibly. Some of the commoner categories into which patients with P.S.S., after examination and consideration, may be allotted are as follows:

1. *As a Response to Cold Air or Water.*—A minor example under this category is familiar to us all. P.S.S. may occur on exposure to a knife-edge draught of cold air. Associated with this is a feeling of being out of sorts and probably also disturbance of regular bowel functioning. As a rule, in a few days the patient recovers naturally.

2. *As a Response to Sudden Muscular Movement (the "Crick").*—A common example of P.S.S. in this category is the acute torticollis which may occur on rising in the morning, during washing or dressing. The pain may be excruciating, and any movement of the neck may cause the pain to radiate throughout the whole side of the body affected. Tender spots are present. With rest and warmth the acute phase subsides, often dramatically, in two to three days.

3. *Hysteria.*—P.S.S. as a symptom of hysteria is not uncommon in males, especially those who are engaged in a dangerous occupation. Being in one of the Services may be a dangerous occupation, and the cases quoted by the writers belonged to one of these. In civilian life examples of dangerous occupations are workers at depths (typically, underground miners) and workers at heights (typically, steeplejacks, window cleaners, slaters, etc.). Other examples are workers at explosive works. Progressive anxiety over one's bodily safety is a factor in the appearance of hysterical pain. Clinically, there is often a marked thumping of the aorta in the epigastrium, and the appropriate use of a pin will frequently reveal a typical hysterical zone of anaesthesia. Lastly, tender spots are common in hysteria.

4. *Psychosomatic P.S.S.*—Symptoms of pain, stiffness, and spasm arise as episodes in the course of chronic anxiety states and depressions. In patients who have been on the sick list for several months this category probably covers 30% to 40%. Tender spots are associated with the site of pain.

These four examples are provided merely to illustrate a method of approaching not a simple but a complex and difficult problem, and they in no way represent an exhaustive list of the disorders which may be included in the P.S.S. symptomatological group. It will be noted that, although each of the disorders exemplified has tender spots, each has a distinctive aetiology, each runs a typical clinical course, and presumably, also, each will have a distinctive pathology.

The writers also employ the term "fibrositis" to account for various other disorders which they name. Comments could be made on each, but reference to only two will suffice here. *Headache.*—Tender spots are present in all headaches irrespective of the immediate precipitating factor, be it feverish illness, trauma, drug intoxication, or "neurosis." Moreover, if the headache during the attack moves its position, the tender spots move also. *Pectoral Fibrositis associated with Effort Syndrome.*—This complex is usually better understood in terms of the psychoneurotic concept. Tender spots are present, and as the anxiety state dissipates the pain and the tender spots dissipate also.

The theory of fibrositis in its full-blown form clearly corresponds to a mode of obsessional thinking which goes on operating without reference to reality. Thus it ignores facts, refrains from collating observations, and refuses to admit to its examination and researches relevant techniques of approach—for example, the psychological. Then, what about the "almost uniformly good results" following the injection of P.S.S. patients with procaine? Surely this shows something? But what exactly does it show, when we take into account: (*a*) that procaine is a local anaesthetic; (*b*) that age-long remedies for hysteria and melancholy (a word which covers anxiety states and depressions) have included (1) injection or penetration of the organism, (2) hurting the patient whether by red-hot poker or by injections of turpentine, or even of procaine, where, as the writers admit, the pain of reaction may be very severe?—I am, etc.,

Glasgow. JAMES L. HALLIDAY.

Use of Tampons Internally during Menstruation

SIR,—I feel that I should give details of the following cases, in view of the wide use by women during the menstrual period of compressed absorbent material worn internally as a tampon. Such tampons are widely advertised in the Press.

A girl of 22 sought advice with a week's history of profuse and foul vaginal discharge. My first thoughts were that she might have contracted gonorrhoea, as on examination the discharge seemed to be thick green pus. Closer examination with the introduction of a speculum showed a general vaginitis with copious pus. After swabbing, something which looked like a large slough was seen in the anterior fornix. On pulling at this it came away and revealed itself as one of these tampons, complete with string with which to pull it out. The vaginal wall was ulcerated in this region. Further questioning showed that it had probably been lost during the period before her last one, this last one having begun just before the discharge. She regularly used these tampons, and did not know she had left one inside. I might add that she was an intelligent and educated girl.

I have also heard of another case of a girl who inserted such a tampon upside down, and therefore had no means of pulling it out. It took her two hours to extract it.—I am, etc.,

W. WARREN,
Surgeon Lieut., R.N.V.R.

Anaesthesia for Abdominal Surgery

SIR,—With reference to Dr. Ronald Jarman's letter (January 17, p. 87) may I say that I have never stated that "pentothal diminishes the oxygen capacity of the blood as compared with evipan," nor can I find any such suggestion in the article referred to (James, N. R., and Burge, H. W., *British Medical Journal*, December 27, 1941, p. 906).

E. A. PASK,
Flying Officer, R.A.F.V.R.

*** The relevant sentences in the article by N. R. James and H. W. Burge are: "We prefer evipan to pentothal because after a 'single' dose it gives a long light narcosis without undue depression of the respiratory and cardiovascular centres. Evipan does not diminish the oxygen capacity of the blood (Pask, 1941)."

Oxytocic Injections by Midwives

SIR,—I think Dr. W. J. Clancey's suggestion (January 10, p. 56) of supplying district nurses with the means of efficient treatment of post-partum haemorrhage is a most urgent one. With a careful check on the issue of these drugs there need be no fear of their misuse. I think, however, that it ought to be emphasized that the use of these drugs does not replace good obstetrics. The casual conduct of the third stage of labour is in very many cases the cause of a post-partum haemorrhage. The quickest and most efficient treatment of a P.P.H. does not replace blood lost, and in most of the cases I have seen I have felt that the catastrophe could have been prevented.—I am, etc.,

Sheffield. A. STEPHEN.

Vaccinia after Vaccination

SIR,—A case of vaccinia was reported by Dr. J. N. Turnbull (November 22, p. 751) and stimulated a most interesting comment by Dr. M. H. Gordon (December 6, p. 822).

In His Majesty's Services large numbers of personnel are vaccinated and occasionally complications are met with. At a recruiting centre where I was stationed for a time we regularly saw cases of headache, malaise, and fever some ten or fourteen days after vaccination with no skin eruption, but I remember seeing one case of an airman after vaccination who developed as well as the above features a generalized pustular rash, which was presumed to be vaccinia. He was sent to hospital; I lost touch with him and have since been moved to a station some distance away. Having no notes and no access to the case history I have to apologize for the inadequacy of this report, but I felt that mention of such a case might encourage further information from other medical officers with the Forces through whose hands many vaccinated cases are passing and who possibly may have vaccinia cases to describe.—I am, etc.,

A. M. TURNBULL, M.B., Ch.B.,
Flying Officer, R.A.F.V.R.

Rubella in Virgin Soil

SIR,—The medical authorities of a certain tropical island lately informed me that in recent months a ship was strictly quarantined there on account of a case of rubella on board. The reasonable explanation given was that this disease was unknown in the island, and the story was cited of a similar place where it was introduced among the natives with widespread and, in some of the children, fatal results.

To one who has come to regard rubella as hardly a disease, and much less dangerous to the community than the common cold, this sounded like a case of mistaken diagnosis, and my informant was unable to supply me with any account of the form and complications of the disease in those circumstances. The only reference to such a possibility I have yet found is in Price's *Textbook of Medicine*, where it is stated: "On occasions epidemics of rubella of more severe type, approximating in symptoms and sequelae much more closely to measles, have been described."

If any of your readers have knowledge of such an epidemic, I do not doubt it would be of general interest, and would also serve as a warning of the sort of trap that awaits him who finds himself practising tropical medicine *malgré lui*.—I am, etc.,

JOHN VINCENT-SMITH,
Surgeon Lieut.-Commander, R.N.

Administration of Voluntary Hospitals

SIR,—Dr. Murdo Mackenzie (January 17, p. 93) seems to forget that nearly all the large medical schools are in fact affiliated to universities, and that all universities are affiliated to medical schools. His statement that some of the most academically inclined and progressive medical men have departed from the voluntary hospitals and gone to the universities is therefore pointless.

Regarding catatonia, the classical meaning of the word denotes a state of immobility in tension. If some people have attempted to make it also mean liability to a state of frenzy or impulsiveness, that divergence from classical exactitude cannot be laid at the door of the voluntary hospitals. Careful reading of my letter will show that I regarded both snails and catatonia (and the Civil Service mechanism) as static rather than dynamic, not that I thought that snails suffered from catatonia, or indeed a state of frenzy.

Slowness of Civil Service action and reaction is a commonplace of literature from the Circumlocution Office of Dickens to Birdseed Pool and the Ministry of Wishful Thinking by Bechofer Roberts. Democracies at war seem always to need to call upon business men to handle Civil Service Departments when rapid action and decision are required.

Nearly everyone who has had experience both of voluntary hospital and of State organization will agree as to which is the more obstructive and which the more elastic. It is a question also as between professional, personal, and scientific freedom and professional, personal, and scientific bondage. An attempt should be made to combine the best points of both systems in post-war reconstruction.—I am, etc.,

London, W.1. GEOFFREY BOURNE, M.D., F.R.C.P.

Tests in Pemphigus

SIR,—The annotation on pemphigus (January 10, p. 48) mentions the *Lupinus albus* test for pemphigus. I was under the impression that Sansome and Forman (*Brit. J. Derm. Syph.*, 1939, **51**, 63) had quashed this test as unreliable. There it was shown that *L. albus* would not grow normally in normal serum and that the statistical difference between growth in normal and pemphigus serum was not significant.—I am, etc.,

Manchester. F. W. SANSOME.

The Services

ARMY AWARD

The M.C. has been awarded to Captain John Bissill Heycock, R.A.M.C., in recognition of gallant and distinguished services in the Middle East.

CASUALTIES IN THE MEDICAL SERVICES

ROYAL ARMY MEDICAL CORPS

Captain CLARENCE HENRI-FRANCOIS DE CHALUS is included as "Died" in an Army Council Casualty List published on January 23. He was educated at the University of Edinburgh, where he graduated M.B., Ch.B. in 1921. He resided in Edinburgh until 1926, when he went to Newcastle-upon-Tyne, where he was in practice for ten years, moving to London in 1936. He entered the R.A.M.C. as temporary lieutenant in May, 1940, and was promoted captain a year later.

Captain CHARLES ARTHUR MOYNIHAN, who was killed in Malaya in December, was 28 years of age and the son of the late Mr. H. J. Moynihan. He received his professional education at Westminster Hospital, and qualified M.R.C.S., L.R.C.P. in 1937. After holding the post of house-surgeon at St. Paul's Hospital for Urological and Skin Diseases, London, he entered the R.A.M.C. at lieutenant in 1937 and was promoted captain a year later.

Wounded

War Substantive Captain Arthur Brynmor Waters.

ROYAL AIR FORCE

Flight Lieut. LEO MALCOLM MAGURK, who was killed in December, was born on November 4, 1915, and received his medical education at the Middlesex Hospital, qualifying M.R.C.S., L.R.C.P. in 1939. After several short hospital appointments he entered the R.A.F.V.R. as flying officer in April, 1940, and was promoted flight lieutenant a year later. He was posted to the Far East Command in August, 1941. He was a member of the British Medical Association.

Missing

Flying Officer Jack Fiddes, R.A.F.V.R.

INDIAN MEDICAL SERVICE

Major LEOPOLD FRANCIS BURNS is included as "Died" in an India Office Casualty List published on January 20. He was 46 years of age. In September, 1914, at the age of 19, he enlisted in the Royal Dublin Fusiliers, was demobilized in March, 1919, and took up the study of medicine and qualified L.R.C.P.&S.I. in 1926. He was appointed to the I.M.S. as lieutenant in 1927, with one year's seniority, was promoted captain a year later, and major in 1937. While in the ranks he saw much active service: Gallipoli 1915, Serbia 1915, Macedonia 1915-17, Palestine 1917-18, and France 1918.

Wounded

Captain Des Raj Sharma.

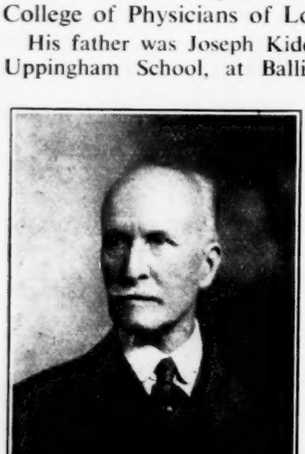
Obituary

PERCY KIDD, M.D., F.R.C.P.

Consulting Physician to the London Hospital

Dr. Percy Kidd, for many years physician to the London Hospital and to the Brompton Hospital, died peacefully at Abbots Lea, Chalfont St. Giles, in his 91st year. His name appears immediately after that of Sir Thomas Barlow in order of seniority on the List of Fellows of the Royal College of Physicians of London for 1941.

His father was Joseph Kidd, M.D., and he was educated at Uppingham School, at Balliol College, Oxford, and at St. Bartholomew's Hospital. He gained a first class in the Final School of Natural Science in 1873, and qualified in 1878 by taking the M.R.C.S. diploma and the Oxford M.B. In the same year he was awarded the Radcliffe Travelling Fellowship, which took him for a time to Strasbourg and Vienna. He served as house-physician at St. Bartholomew's, and was subsequently casualty physician at that hospital and assistant medical tutor and demonstrator of practical physiology in the medical school. He was also for some years on the staff of the City of London Hospital for Diseases of the Chest. An important event in his career was his election as assistant physician to the London Hospital. He was looked upon as a brilliant man, but, being rather shy and retiring, he was beaten by Samuel West for a vacant appointment at St. Bartholomew's, and as there was no immediate likelihood of another vacancy on the visiting medical staff he grasped an opportunity that arose at the London Hospital, just as Frederick Eve did on the surgical side.



[*Photo by Lafayette, Ltd.*]

Percy Kidd's long service on the staff of the Hospital for Consumption, Brompton, began with his appointment as assistant physician and pathologist. For many years he was joint lecturer on pathology and lecturer on the principles and practice of medicine in the London Hospital Medical School. He proceeded to the M.D. degree at Oxford in 1882. He was specially interested in diseases of the chest, writing several articles for Fowler's *Dictionary of Practical Medicine* and for Quain's *Dictionary of Medicine*. He was joint author of the article on pulmonary tuberculosis in Allbutt's *System of Medicine*, 1898 and 1909. He wrote the greater part of this long article of 140 pages, the pathology, bacteriology, and the specific treatment being written by William Bulloch, and the sanatorium treatment by Noel Bardswell. Kidd's share on the clinical side was an exhaustive consideration of the subject at that date.

He became a Member of the Royal College of Physicians in 1879, and was elected to the Fellowship in 1885. He had an honourable connexion with the College, delivering the Harveian Oration in 1918, on the doctrine of consumption in Harvey's time and to-day. He served on the Council and as one of the Censors. He also delivered the Lumleian Lectures in 1912, his subject being "Some Moot Points in the Pathology and Clinical History of Pneumonia"; they were published in this *Journal*. He acted as examiner in medicine for his own university and for Cambridge and Durham. Having joined the British Medical Association in 1889, he remained a member until his retirement from active work.

The following well-known medical men have died abroad: Dr. HENRY MEIGE, a leading Paris neuropsychiatrist, editor of the *Revue Neurologique* and *Nouvelle Iconographie de la Salpêtrière*, and professor of artistic anatomy at the Ecole des Beaux-Arts; Dr. FREDERICO KIESOW, the doyen of Italian psychiatrists, aged 82; Dr. VICTOR HAEBERLIN, an eminent Swiss psychiatrist, aged 75; and Dr. GEORGE WASHINGTON HULL, formerly vice-president of the American Medical Association, aged 72.

E. ROWLAND FOTHERGILL, M.B., B.S.

Vice-President, British Medical Association

Only two members of the 1914 Council of the British Medical Association were still members of the Council a quarter of a century later. One is Sir Henry Brackenbury, and the other was Dr. E. Rowland Fothergill, who died last week. A much earlier date might have been taken to indicate Fothergill's entrance upon the central stage of Association affairs. As far back as 1904, after he had been for two years Division Secretary, he was for a time a member of Council, and he was a member, if not of the first, of the early Annual Representative Meetings. At that time, practising in the Metropolitan area, he represented Wandsworth; later it was as a Representative of Brighton that he was generally known.

Mere length of service was the smaller thing that Fothergill gave to the B.M.A. He was from first to last an active and constructive critic, and the author of more ideas that have borne fruit within the Association than anyone except perhaps its founder. When in later years his health did not permit him to attend many meetings he would almost invariably send forward his comments on the agenda, often with a sheaf of suggested amendments. When he rose to speak these were introduced in the rather brusque staccato way which signified his impatience to get things done or undone. Such a "disturber of the peace" was often a thorn in the side of chairmen and others. When from a familiar corner a voice was raised: "May I ask . . ." it meant that that particular business would run no more along its smooth course. A sharp eye had discovered some supposed laxity of phrasing, some possibility of mischief in an apparently innocent document, or perhaps a missed opportunity, while doing well, of doing better. With the object of facilitating business all members of Council and committees receive bulky documents which they are expected to digest before the meeting. It may be that these are lightly skimmed by some, but those that went to Hove were always studied, line by line and word by word.

Fothergill by no means always got his own way; his impetuousness sometimes carried him too far, and his sense of proportion was often at fault. But he never showed resentment at rebuffs, and nothing caused him to relax his vigilance. Whatever opposition some of his proposals or objections might arouse, it was acknowledged by all that the single purpose of this critic who made the Brighton area lively on the Association map was to maintain and strengthen the organization in which he so thoroughly believed.

Ernest Rowland Fothergill was borne at Ryde in the Isle of Wight in August, 1864. He was educated at Malvern College and took his medical degree at Durham in 1895, becoming a member of the Association in the same year. After serving as clinical assistant at Durham County Asylum, he took up general practice, first in Cornwall, later at Wimbledon on the border of London, and, in 1911, at Hove, where he was honorary consulting physician to the general hospital and public vaccinator. For many years he was an insurance practitioner in the Brighton area. He saw war service as a major in the R.A.M.C., and was mentioned in dispatches.

His stalwart defence of the rights and privileges of private practice proceeded from an earnest study of medical sociology. He believed that scientific advance in medicine is held back unless it is accompanied by an equivalent medico-political and sociological advance. To the various aspects of medical sociology he made many contributions, and he was honorary secretary, vice-president, and president of the Section of Medical Sociology at the Annual Meetings of 1913, 1921, and 1922 respectively. His lot was cast in a time of change, when private practice, as it was formerly known, was giving place to a combination of State practice and private practice, and he felt that this was a situation which called for vigilance if the interests of medicine and the medical profession were not to be imperilled. He took a conspicuous part in the new field of medico-political action which was opened up by the introduction of the National Health Insurance Bill in 1911. He was a member of the special Poor Law Reform Committee set

up by the Council under the shadow of coming events in 1909, and of the State Sickness Insurance Committee (afterwards the Insurance Acts Committee) which developed out of it; of this he remained a member until 1932. He may be said to have been the father of the Annual Panel Conference. It was his idea in 1913, the Annual Meeting of the Association being held that year in Brighton, to get together the practitioners who were doing insurance work. The conference was held in the Royal Pavilion. Fothergill himself, with strange self-repression, does not seem to have spoken more than once at it. This was the forerunner of the annual conferences which have taken place ever since, but it was much more than that: it meant that the Local Medical and Panel Committees chose the British Medical Association as the body to which they looked for central organization, negotiation, and support. They might without such an impetus have created a separate body of their own, thereby severing insurance practitioners from the rest of the profession and emphasizing competitive interests. What followed from Brighton has no doubt greatly increased the influence and prestige of the Association, and equally it has been of immeasurable advantage to insurance practitioners themselves. Later Fothergill served on the special committee set up to prepare the evidence to be given before the Royal Commission on the Insurance Acts in 1924. In his own locality he was a member of the Brighton Local Medical and Panel Committee for twenty years and its chairman for seven. He served on the Brighton Insurance Committee for the whole of that period, and also had short terms of service on the corresponding committees for East Sussex.

The B.M.A. Hospital Policy was a parallel field in which he applied his energies. Here again the time was one of rapid change. Voluntary hospital management was shifting from the old charitable basis to one in which all patients paid according to their means or through contributory schemes, and in which pay-beds, pay-wards, or pay-blocks figured ever more prominently. He felt that the closest watch was necessary lest the services of visiting medical staffs of hospitals be exploited. He deprecated the overburdening of out-patient specialist departments of voluntary hospitals by patients whose examination and treatment could have been undertaken in their own homes or in private consulting rooms or in clinics staffed by private practitioners. To clinics, apart from the home doctor, he was never reconciled. At their best, he said, they were poor things and makeshifts, used to fill a temporary vacuum. Fothergill was a member of the Hospitals Committee of the Association from 1921 until 1933.

Among the committees on which he served at one time or another were the Medico-Political, the special committees on tests for drunkenness and on the notification of venereal diseases, and the committee which, eleven years ago, brought forward the proposals for a General Medical Service for the Nation. The policies in the shaping of which he had an active share included those concerned with maternity and child welfare, inspection and treatment of school children, duties and salaries of medical officers at public schools, model rules for nursing associations, and the education of the public in health matters. He was also for three years a member of the Organization Committee and was always interested in the constitution of the Association, especially in its function as an imperial body, and many useful suggestions, slight in themselves, came from him with a view to strengthening the ties between the Association at home and its Federal Councils and Oversea Branches.

He was probably the most assiduous letter-writer the Association has ever had, and some of his letters were extremely pointed. His letters, not only those for publication but those addressed to officials at headquarters and others, if collected, would form a commentary on the medico-political issues of a generation. And these frequent essays in penmanship were undertaken by a man who had no real gift for writing. He was inclined to call literary form mere "verbiage"—a word he often used and always with scorn.

A breakdown in health in 1932 lessened his active participation in Association affairs. It was a wonder to his friends that he had gone on at full steam until nearly seventy. In 1933 he was elected a Vice-President of the Association, and in 1936 a Fothergill Testimonial Fund was raised, to the amount of nearly £1,700. In a letter signed by the principal Officers of the Association and others well known in the profession it was stated that "his fertility of ideas, his persistence, and his loyalty to principle and to the interests of the Association have justly given him a unique position." In acknowledging the testimonial Fothergill wrote that the services of which it was the recognition had been made possible only because of the patience, sympathy, co-operation, and companionship of a large band of workers. Beneath his stiff manner and challenging air there was genuine kindliness, and his friends knew what a warm heart his abrupt speech concealed.

In his later years Dr. Fothergill left Hove and settled at Tunbridge Wells, where he died on January 20.

Dr. ALFRED COX writes:

I am grateful for the opportunity to add a personal note to your generous and well-merited tribute to my old friend. As one who during many years was the recipient of almost daily letters from him bearing on the work of the Association, I am qualified to say that no man in my acquaintance ever more fully and whole-heartedly gave up practically the whole of his working life to the interests of our profession and our Association. Fothergill was quite unique in his hawk-like capacity for spotting a weak point in an agenda, and nothing could drive him off it until he had been convinced or beaten by a vote or a chairman's ruling. I owe much to him for his vigilance and for the example he set me and others of sheer devotion. If ever a man deserved the epithet "incorruptible" it was Fothergill. He sought neither honours nor applause. His kindness of heart and loyalty to his friends and his cause were concealed under a somewhat austere bearing, but there are few men who will be more regretted by the colleagues who knew him in his prime.

Dr. AUGUSTUS FREDERICK DIMMOCK died on January 15 in his eighty-ninth year at Harrogate, where he had practised for many years until his retirement in 1935. A native of Ely, he studied medicine at King's College Hospital and qualified in 1885, later taking the M.B. and the M.D. of Durham University. He set up in practice at Harrogate more than fifty years ago after holding appointments in London, and was one of the first three medical officers of the Harrogate Cottage Hospital, which later became the Harrogate Infirmary and is now the Harrogate and District General Hospital; in recognition of his long work for that institution he was made a vice-president. Dr. Dimmock was for many years a member of the British Medical Association.

The death took place on January 15 at Totland, Isle of Wight, of Dr. REGINALD JOHN ROBERTS. He was born at Cambridge in August, 1861, the son of the Rev. R. J. Roberts, and from Gresham's School, Holt, went on to Corpus Christi College, Cambridge, and later to Guy's Hospital. He graduated M.A., M.B., B.Ch.Camb. in 1889 and practised for some years at Lowestoft, where he was police surgeon. He then moved to Ventnor and held a number of medical appointments in the Isle of Wight, and was made an honorary surgeon to the St. John Ambulance Brigade. Dr. Roberts had been a member of the B.M.A. for forty years before his retirement to Totland Bay.

Dr. HUMPHREY DOUGLAS GARDNER of West Byfleet died after a short illness on January 17, aged 49. His father was the late T. F. Gardner, M.D., and he was educated at Malvern and Trinity College, Cambridge. He took his B.A. in 1914, and after clinical study at University College Hospital obtained the English Conjoint diplomas in 1916. He served as house-surgeon at U.C.H., and then held a commission for four years in the R.A.M.C. Special Reserve, reaching the rank of major. After the war he held house appointments at Addenbrooke's Hospital, took the Cambridge M.B., B.Ch. degrees in 1922, and then worked as house-surgeon and as resident medical officer at the East London Hospital for Children at Shadwell, and also as resident medical officer at the Soho Hospital for Women. Dr. Gardner practised for some years at Cooden, near Bexhill, and then moved to Woking. He had been a member of the B.M.A. for twenty years.

Universities and Colleges

UNIVERSITY OF ABERDEEN

The Dr. Isaac Gilchrist Lecture on Medical Science will be given by Prof. J. A. Ryle on Wednesday, June 10.

UNIVERSITY OF ST. ANDREWS

At a graduation ceremonial on January 16 the following degrees were conferred:

M.D.—W. G. Bridges, H. Climie.

M.B., CH.B.—M. D. L. Da Fano, Patricia P. Franklin, M. G. Green, A. A. M. Heap, J. A. Hendriksz, T. S. Maw, J. D. Ramsay, D. Simpson, S. A. Walker, Ellen F. Young.

The MacEwan Prize in Surgery was awarded to S. A. Walker.

Medico-Legal

NEED THE MEDICAL WITNESS ATTEND?

Some remarks which have been attributed to Mr. Justice Lewis[1] emphasize an apparent cleavage of opinion among judges on the desirability of calling doctors to give evidence in injury cases. The learned judge, it is reported, strongly criticized the calling of doctors to give evidence personally unless every effort has first been made to produce a written medical report agreed by the doctors on both sides. He said the judges expected the order of the court to be observed, and pointed out that they could penalize solicitors infringing it by ordering them to pay the costs of medical testimony out of their own pockets. This is an order, often made in injury cases, "That the medical report be agreed as between the parties if possible, and failing agreement, evidence to be limited to two witnesses on each side." After closely questioning counsel in one case in which three doctors had been called to Leeds from another town in the West Riding, the judge said: "In these days particularly it is absolutely scandalous—and I use that word advisedly—that medical gentlemen who are much better occupied elsewhere should have to come to court, two or three on each side sometimes." He saw eye to eye, it appears, with his brother Mr. Justice Macnaghten, who is reported[2] to have said that he had never yet come across an accident case where the evidence of a doctor in person was of any assistance at all, though doctors' reports were generally most helpful. The parties in that case were proposing to call a good deal of medical evidence, and he declined to fix a day for the trial and warned counsel that if it should appear that the medical witnesses could have put their evidence in the form of written reports he would not award the costs of calling them. It is, he said, a sheer waste of money and valuable time to bring doctors to court.

Conflicting Judicial Views

On the other side of the question are the remarks of two Lords Justices of the Court of Appeal of which we gave some account in an earlier issue.[3] The court was hearing an appeal from a decision of Mr. Justice Croom-Johnson at assizes.[4] In the preliminary stages of the action the Master had made the order quoted above. Nevertheless, the injured workman called his doctor as a witness to the gravity of his injuries. The learned judge formed the view that the doctor had made too pessimistic an estimate of the man's condition, and declared that the man ought never to have called him at all; he would not allow him the costs of this witness, holding that the medical report should have been agreed between the parties. The workman appealed, and the Court of Appeal raised the judge's figure for damages and awarded the appellant the costs of the medical witness. Lord Justice MacKinnon thought it unfortunate that the judge, by a threat of that sort, should discourage people from calling doctors and cause them to substitute written reports. Such reports, he said, often contain technical language, and it is of the greatest possible advantage that the doctor should be called. Lord Justice du Parcq deprecated the indiscriminate making of the order for an agreed report or alternatively a limit of two witnesses on each side. Sometimes he found it, especially where prognosis is important, most desirable that a doctor or doctors should be available to answer any questions which the judge may wish to ask.

Faced with this conflict between the Court of Appeal and the trial judges, many solicitors will probably suffer from severe headache when preparing evidence in running-down cases. Meanwhile medical witnesses will, as always, be ready and willing to give oral or written evidence as may be required, but the attitude of the three puisne judges will probably appeal to them more than that of the Lords Justices.

1 *Yorkshire Post*, November 22.
2 *Lancet*, 1941, 1, 425.
3 *British Medical Journal*, 1941, 1, 733.
4 Proctor *v.* Peebles (Papermakers) Ltd., 1941, 2 All E.R., 80.

ERASURE FROM "MEDICAL REGISTER"

THE MEANING OF "DUE INQUIRY"

Section 29 of the Medical Act of 1858 runs as follows:

> "If any registered medical practitioner shall be convicted in England or Ireland of any felony or misdemeanour, or in Scotland of any crime or offence, or shall after due inquiry be judged by the General Council to have been guilty of infamous conduct in any professional respect, the General Council may, if they see fit, direct the registrar to erase the name of such medical practitioner from the register."

The General Medical Council at its last session[1] considered the case of Dr. E. D. Spackman of Worthing, who had been summoned to appear as a result of the divorce decree in the case of Pepper *v.* Pepper (Spackman cited), dated February 3, 1941, and made absolute on August 26, 1941, in which he was cited as co-respondent, he having stood in professional relationship with Mrs. Pepper at all material times. Mr. Oswald Hempson, who appeared for Dr. Spackman on behalf of the Medical Defence Union, admitted the professional relationship but disputed the adultery; he contended that the decree of the Divorce Court as such was not evidence of misconduct, but that the Council according to the wording of Section 29 was under obligation to hold a "due inquiry" into this part of the charge when he proposed to call evidence additional to that which had been called before the Court. After a legal argument the Council deliberated *in camera* and the President announced that the Council was not prepared to hear fresh evidence. Mr. Hempson therefore contented himself with commenting on certain passages in the shorthand note of the divorce proceedings, and read a number of testimonials and a petition signed by 526 patients. He also called Dr. Spackman's partner, who gave evidence on his behalf. The Council, however, found that Dr. Spackman had been guilty of infamous conduct in a professional respect, and directed the erasure of his name.

Leave to Apply Granted

On January 19, 1942, a Divisional Court of the King's Bench Division, consisting of Mr. Justice Wrottesley, Mr. Justice Croom-Johnson, and Mr. Justice Cassels, granted an application made by Mr. Cecil Havers, K.C. (Mr. H. C. Dickens appearing with him, instructed by Messrs. Hempsons on behalf of Dr. Spackman), for leave to apply for an order against the General Medical Council on the ground that it had struck Dr. Spackman's name from the *Medical Register* without holding "due inquiry." Dr. Spackman seeks to compel the Council to hold that inquiry, and asks that the Council's decision be quashed. Mr. Havers said that the solicitors for Dr. Spackman (Messrs. Hempsons) asked the Council to hear evidence which had not been before the Divorce Court and which they considered would affect the mind of any tribunal regarding the doctor's innocence. The Council declined to hear that evidence and, on the decree of divorce being proved, refused to allow the issue of adultery to be contested. Mr. Havers argued that the Council had not held "due inquiry" before ordering Dr. Spackman's name to be erased from the *Register*.

Leave having been granted, the application for an order against the General Medical Council will be heard by a Divisional Court.

1 See *Supplement* to *British Medical Journal*, December 27, 1941, p. 114.

Medical Notes in Parliament

Quarantine Rules for Infectious Fevers

On January 20 Mr. SILKIN asked the Minister of Health whether his attention had been drawn to the results of investigations carried out by the medical officer of health to the Post Office in connexion with quarantine rules in respect of infectious diseases, which proved that the existing rules of quarantine involved unnecessary idleness, and therefore imposed a needless loss of healthy man-power; and whether he would take steps to bring these conclusions to the notice of industry and to all medical officers of health.

Mr. ERNEST BROWN replied: Yes, sir; the conclusions referred to are in general accord with the advice which my Department has given for years past when guidance on the subject has been sought. My medical advisers and those of the Board of Education have recently given the matter further consideration, and I hope that very shortly the two Departments will issue to local education authorities a schedule recommending revised periods of exclusion from school of patients suffering from infectious disease or their contacts. As regards industry, I am in communication with the Minister of Labour and National Service.

Precautions against Typhoid and Typhus

On January 20 Mr. ERNEST BROWN said that precautions against typhoid were part of the normal public health services, but they had been supplemented by arrangements which would enable any local authority to carry out immediate large-scale inoculation whenever, in the opinion of the medical officer of health, circumstances made this advisable. Special precautions had been taken against the possible spread to this country from the Continent of louse-borne typhus fever, and a circular on this subject had been issued to all local authorities.

On the same day Sir EDWARD GRIGG said that the question of the typhus epidemic in Eastern Europe was receiving most careful attention. Special measures have been taken to protect our troops in the Middle East against the possibility of an extension of the epidemic outside Europe. The measures already taken included arrangements for the supply of vaccine and the setting up of additional laboratories for diagnostic purposes in the Middle East.

Mr. EDEN said on January 21 that there had been a marked increase of typhus on the German side of the Russian front and in Eastern and South-Eastern Europe. Statistics of the cases could not be obtained, because the German authorities kept these figures secret.

Vitamins for Pharmaceutical Purposes

Major LLOYD GEORGE informed Captain Elliston on January 20 that there were no restrictions on the use of vitamins B_1 and D for pharmaceutical purposes. It was not possible to increase the present supply of D owing to the large demands for this vitamin for the fortification of margarine. In regard to vitamin C there was no restriction on the use of ascorbic acid for tablets and other "straight" preparations. There was, however, a voluntary restriction with the manufacturers whereby pharmaceutical manufacturers of proprietary brands of multi-vitamin preparations were allowed supplies of ascorbic acid on the basis of their average usage in the first five months of 1941 before the introduction of the Vitamin C Control Order on June 2 last. This restriction had been imposed by the Minister of Food with the agreement of the Minister of Health, on the recommendation of a special Diets Advisory Committee of the Medical Research Council.

Verminous Condition of Irish Workers

Mr. WAKEFIELD inquired on January 22 what steps had been initiated to prevent workers coming from Ireland in a verminous state, with scabies, venereal disease, tuberculosis, or other contagious infection. Mr. ERNEST BROWN replied that there was no regular system of medical examination in Eire or Northern Ireland of workers engaged by employers for work in this country. It was not practicable, therefore, wholly to prevent transference of particular individuals. Mr. Bevin and he were alive to the need for safeguarding the public health in this country. Arrangements had been made for medical examination of the workers concerned as soon as they arrived at a site which Mr. Wakefield had in mind. Mr. Brown thought that action on the site was the best method. The port health authorities were primarily concerned with infectious diseases liable to cause epidemics. He added that the Ministry of Health was sympathetic about the matter.

Rehabilitation and Follow-up Treatment

Mr. BEVIN announced on January 22 that the interim wartime scheme for rehabilitation, training, and employment of disabled persons was progressing satisfactorily. As an immediate wartime measure they proposed to provide for the rehabilitation and training for employment of disabled persons not provided for by the interim scheme. They had also decided to prepare as soon as possible comprehensive measures for the rehabilitation, training, and resettlement of disabled persons generally for introduction as soon as possible after the end of the war. Both these schemes would make provision for disabled persons of all categories, irrespective of the cause of their disability.

On the same day Mr. BROOKE asked if there were arrangements under the Emergency Hospital Scheme whereby seriously injured persons after leaving hospital could obtain further specialist treatment or supervision. Mr. BROWN replied that apart from the general provision for enabling air-raid casualties and civil defence workers injured on duty to obtain all necessary further medical treatment either at an out-patient department or from a general practitioner, special arrangements had recently been made for following up certain types of injury among these patients, as well as ex-Service patients, where the process of recovery was usually prolonged and needed to be supervised. Cases in which this procedure was particularly desirable were those treated in special centres, which involved peripheral nerve injury, head injury, or chest injury, as well as plastic and jaw cases and certain types of orthopaedic cases. The follow-up would be carried out by asking the patients to come up from time to time for re-examination, and, if necessary, further treatment, either at the original centre or at one more convenient to place of residence, and by keeping careful records of progress in a standard form as advised by the appropriate consultant adviser. He was issuing a circular to hospital authorities on this matter.

Diphtheria Immunization in Glasgow.—On January 20 Mr. JOHNSTON told Mr. Groves that the municipal clinics in Glasgow at which diphtheria immunization was performed were also in use for other medical purposes, only one or two sessions weekly of from two to two and a half hours being held at each clinic for immunization. Sessions were held at 36 clinics in all, and in a recent period of seven weeks the average attendance was 99 children a session.

Nurses' Salaries.—Mr. BROWN informed Sir Francis Fremantle on January 22 that, in accordance with the recommendation of the Interdepartmental Committee on Nursing Services, he had set up a committee representing employers and nurses to draw up agreed scales of salaries and emoluments for nurses employed in hospitals and the public health services. Many employers of nurses had increased the salaries of their nursing staffs in recent years. Others were doing so pending the report of the committee, but full and detailed information was not available. He hoped that there would be no need for an interim report from this committee.

National Wheatmeal.—Sir Ernest Graham-Little, Sir Henry Morris-Jones, Dr. Summerskill, Captain Elliston, Sir John Graham-Kerr, and other members have tabled a motion which proposes that a Select Committee be appointed to inquire what are the considerations which obstruct the exclusive provision as a war measure of a national wheatmeal loaf of the highest practicable extraction, and whether the objections to its adoption are such as to outweigh the practically unanimous recommendations of medical and scientific experts.

Notes in Brief

Mr. Ernest Brown has stated that the number of deaths from diphtheria per 1,000,000 children under 15 was 305 in 1938, 227 in 1939, and 265 in 1940.

At the end of December, 1941, 223 day nurseries were in operation in England and Wales; 313 more were approved but not in operation, and 267 were in preparation. There were fourteen wartime nurseries for children under 5 in the London region, and forty-four others approved.

No. 2

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended January 10.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1942 (a)	(b)	(c)	(d)	(e)	1941 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	143	6	37	1	1	266	14	49	1	12
Deaths		1	4				1	1		
Diphtheria	1,028	46	282	33	40	1,233	40	377	21	35
Deaths	35	1	5	3	1	43	3	16	1	1
Dysentery	98	4	25		1	93	8	33		—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	3	—	—		—	2	—	—		—
Deaths		—	—				—	—		
Enteric (typhoid and paratyphoid) fever						30	3	4	3	1
Deaths						—	—	—	—	—
Erysipelas		—	64	8	2		23	68	7	7
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years										
Deaths	37	5	13	8	4	36	4	11	4	1
Measles	934	76	98	120	3	15,413	440	353	—	11
Deaths	—	—	—	2	—	23	1	5	1	—
Ophthalmia neonatorum	101	7	21		1	73	1	8		—
Deaths										
Paratyphoid fever	6	—	1	—						
Deaths	—	—	—	—						
Pneumonia, influenzal*	1,041	65	14	—	16	1,465	79	24	7	11
Deaths (from influenza)	61	9	3	1	3	69	9	8	6	1
Pneumonia, primary			366	18				268	57	
Deaths		68		17	21		74		15	9
Polio-encephalitis, acute	3	1				—	—			
Deaths		—					—			
Poliomyelitis, acute	8	—	—	5	—	5	—	6	—	—
Deaths		—	—				—	—		
Puerperal fever	—	—	17	1	—	—	—	13	2	—
Deaths		—					1			
Puerperal pyrexia	166	—	17		7	119	—	14		2
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	962	33	239	31	25	1,164	77	174	47	46
Deaths	—	—	—	—	—	1	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	18	2	2	5	—					
Deaths	1	1	—		—					
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,680	201	71	42	34	2,761	30	320‡		31
Deaths	12	—	—	1		22	2	14	3	
Deaths (0–1 year)	343	47	94	30	37	484	39	96	39	16
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	5,095	765	709	231	163	7,251	1,026	1,034	284	189
Annual death rate (per 1,000 persons) living			16·0	15·3	§			22·5	18·9	16·6
Live births	5,331	515	787	272	202	5,418	333	922	316	223
Annual rate per 1,000 persons living			16·3	18·1	§			18·7	21·0	19·5
Stillbirths	197	17	42			217	13	42		
Rate per 1,000 total births (including stillborn)			51					44		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Notification in certain administrative areas only.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

The most notable differences from the notification totals of the preceding week in England and Wales were those of scarlet fever (a decrease of 164), whooping-cough (an increase of 137), and pneumonia (an increase of 79). The largest decrease in the incidence of scarlet fever was in the South-Eastern counties of Kent, Sussex, and Hampshire, where 40 cases were notified compared with 105 in the previous week. The increase in the notifications of whooping-cough was fairly general throughout the country, the largest being in Yorkshire, West Riding, where the figures rose from 81 to 148. Two-thirds of the notifications in this county were from three towns —Leeds C.B. 59, Bradford C.B. 20, and Sheffield C.B. 13. The largest variation in the trend of pneumonia was recorded in Lancashire, where the number notified rose from 107 to 163. This was due mainly to the experience of two cities—Liverpool C.B. and Manchester C.B., where 30 and 12 cases in excess of the total of the preceding week were recorded.

Notifications of diphtheria amounted to 1,028, or 20 fewer than in the preceding week. Among local variations may be noted the increased incidence in Staffordshire, Lancashire, and Yorkshire, West Riding. Owing to the rise in the returns for measles in the county boroughs, the figure for Lancashire showed a 50% increase, the principal centres of infection being Wigan C.B. 51 and Manchester C.B. 22.

Dysentery reappeared in Essex, where two districts were affected: Colchester M.B. 10 and Chelmsford R.D. 9. Of the 18 cases of typhoid recorded during the week, 9 occurred in Devonshire, St. Thomas R.D.

Notifications of ophthalmia neonatorum increased by 25 during the week, and the largest number for recent months was recorded, almost one-third of the total coming from Birmingham C.B. (31 cases).

In Scotland there was a big rise in the notifications of diphtheria, measles, whooping-cough, and acute primary pneumonia during the week under review. The higher incidence of diphtheria was fairly general throughout the country, but in the other diseases it was contributed mainly by one city: 89 of the 98 cases of measles were reported from Edinburgh; 202 of the 366 cases of acute primary pneumonia, and 32 of the 71 cases of whooping-cough, occurred in Glasgow.

In Eire the increases in the incidence of measles and of whooping-cough were due to outbreaks in the district of Mountmellick, Co. Laoighis, where 96 cases of the former and 36 of the latter infection were notified during the week. In Northern Ireland 25 of the 34 cases of whooping-cough were reported from the rural district of Lisnaskea.

Cerebrospinal Fever

In the last two years a big increase in the incidence of cerebrospinal fever occurred during the first weeks, rising to a maximum during the eighth to the ninth week. It is therefore of interest to note the present position. The trend of cerebrospinal fever during recent months has been one of relatively large fluctuations around a constant level. The 143 cases during the week under review constitute the largest weekly total recorded since the beginning of August. The disease is at present widely distributed, and the notifications are mainly of isolated cases; only a few administrative areas reported multiple cases. The largest centres of infection are those of Lancashire 27 cases, Yorkshire, West Riding, 13, and Glamorganshire 10.

Returns for the Week Ending January 17

The returns for England and Wales included the following notifications: scarlet fever 1,047, whooping-cough 1,601, diphtheria 1,013, measles 896, pneumonia 1,028, cerebrospinal fever 177, dysentery 128, paratyphoid 8, and typhoid 24. During the week 62 deaths were attributed to influenza in the great towns.

The birthplace in Vienna of Ignaz Philipp Semmelweiss, the pioneer in antiseptic obstetrics, has been converted into an infants' home with 100 beds.

Medical News

National rose-hip syrup will be on sale in chemists' shops in England, Scotland, and Wales from February 1. Its production is the sequel to the campaign organized by the Ministry of Health and the Department of Health for Scotland last summer and autumn, which resulted in the collection of 200 tons of rose hips—the equivalent of 134,000,000 fruits. The campaign was undertaken because rose hips are one of the richest sources of vitamin C. The success of the scheme was largely due to the ready co-operation of teachers, schools, Boy Scouts and Girl Guides Associations, the Women's Institutes, and the Scottish Women's Rural Institutes. Members of these organizations not only gathered rose hips themselves, but arranged to send their supplies, together with those of the general public, in bulk to selected firms for conversion into syrup. Centres of the Women's Voluntary Services also acted as receiving depots. Altogether nine firms participated in the scheme and the collectors were paid 2s. for every 14 lb. of hips. Two sizes—6 oz. and 8 oz.—will be available, costing 1s. 9d. and 2s. 4d. respectively. Only syrup made under the official scheme will bear a label on the bottle stating, "This product conforms to the standard approved by the Ministry of Health." A teaspoonful a day will supply half the vitamin C needs of a child; 5 lb. of the vitamin in this form represents a daily dose for 125,000 children. While black-currant syrup can be made containing 70 mg. of vitamin C per 100 grammes, rose-hip syrup is much richer, containing no less than 200 mg.

Mr. Zachary Cope will deliver a lecture on "Lessons Learnt from Injuries in the Present War" at the Weston Hotel, Bath, on Thursday, February 5, at 5.30 p.m. All Service medical officers and civilian practitioners will be welcome.

A meeting of the Pharmaceutical Society of Great Britain will be held at 17, Bloomsbury Square, W.C., on Wednesday, February 11, at 2.30 p.m., when a lecture on "Prescribing in Wartime" will be given by Dr. Philip Hamill, F.R.C.P.

The Royal Sanitary Institute has arranged a sessional meeting at Salford on Saturday, February 14, in the Great Hall of the Royal Technical College. There will be discussions in the morning on some post-war public health problems and on post-war housing development; and in the afternoon on food substitutes and public health, and on the working of the Food and Drugs Act, 1938. At a further sessional meeting, to be held on Saturday, February 28, in the Nuffield Institute of Clinical Research, Oxford, at 10 a.m., papers will be read on the storage of emergency drinking supplies, and on the administration of the Government evacuation scheme.

Dr. James Fenton, Medical Officer of Health of the Royal Borough of Kensington, and a past-president of the Society of Medical Officers of Health, has been elected president of the Medical Defence Union.

The December issue of the *Proceedings of the Royal Society of Medicine* will include the paper on the control of louse-borne typhus fever in Great Britain in the light of experience in Russia, Poland, Rumania, and China, which was read by Dr. Melville Mackenzie of the Ministry of Health at a meeting of the Section of Epidemiology and State Medicine on November 28. Early application is advisable for the limited number of copies that are available, price 2s. 6d. post free, to the editorial office of the Society, 1, Wimpole Street, W.1.

The Minister of Health has sent a letter (Circular 2559) to local authorities saying that he is informed by the Minister of Labour and National Service that it is now necessary to secure information in accordance with the Public Health (Tuberculosis) Regulations, 1940, about the men in additional age groups who are likely to be called up for military service and who have a tuberculous history. The Minister therefore requires the appropriate medical officers of health to send forthwith on Form T. 147 the necessary particulars in respect of all male registered persons born in the years 1923 and 1924, and to comply in other respects with the Regulations as affecting these age groups.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

QUERIES AND ANSWERS

Treatment for Threadworms

Sir WILLIAM MACARTHUR, M.D., writes: "Inquirer's" account of his case of enterobiasis (January 24, p. 135) suggests that in spite of his directions the patient is continuing to reinfest herself by the mouth. It may be that she is limiting the special washing of the hands to such obvious occasions as after defaecation and before meals. If so, this is quite insufficient. Since infective ova may be smeared widely over the body surface it is necessary to scrub the hands thoroughly whenever they have come into touch with any part, and whenever an article of clothing which has been in contact with the body is handled. For instance, if the patient changes her stockings when dressing to go out, she must scrub the hands before powdering her face or taking a cigarette. The morning cup of tea, taken before washing, is a potent source of reinfestation. For rectal lavage nothing more elaborate than strong salt-and-water is required. This simple procedure should be carried out by the patient herself every night after the anal irritation has well begun (the consequent undisturbed night will well repay the trouble), and at any other time that it may be felt. An effective method of such lavage by the patient is described in "Pruritus Ani," *British Medical Journal*, August 22, 1931, page 335. The most efficient drug for oral administration appears to be gentian violet, but no treatment of enterobiasis can be satisfactory unless auto-infestation by the mouth is stopped.

Income Tax

E.M.S. Salaried Appointment

R. A.'s inquiries will be sufficiently clear from the following replies.

*** (1) A subsistence allowance of £100 receivable in money is assessable. (2) Where the work involves attendance at two hospitals the expense of travelling between them is allowable, but not the expense of travelling between the residence and either of them. (3) Expenses in the form of professional subscriptions are allowable only if membership of the body in question is required by the terms of the appointment. The cost of buying medical books is not allowable.

Results of Air Raids

P. G. H. states that (*a*) the income of his practice has fallen by 52% of the previous year, and (*b*) the realizable capital value of his practice can be put at *nil*. Can he make any claim for income-tax allowance?

*** (*a*) He can claim to have his assessment reduced to the amount of the current year's earnings. If his accounts are made up for the year to March 31, 1942, the matter is simple; if they are usually made up to December 31 he may find it convenient to make his claim to adjustment of the assessment on the basis that it should be the aggregate of (i) three-quarters of the earnings for the year to December 31, 1941, and (ii) the amount of the earnings for the quarter to March 31, 1942. (*b*) This represents a loss of capital, and no claim can be made. *Note.*—P. G. H. can, of course, claim the expenses of replacing professional equipment in so far as it is not covered by insurance.

Appointment—Board and Lodging

P. R. inquires why he should pay income tax on amounts which he does not receive because they are deducted from his salary.

*** The point turns on a somewhat fine distinction as between alternative forms of service contract. If the agreement is that the employer shall pay £*x* and provide board and/or lodging (which we will assume is worth £*y* for the year), then the employee's income-

tax liability is on £*x* only, because the value of the board and lodging is not chargeable. But if the terms of the agreement provide for a salary of £*x* but authorize the employer to make deductions (which we will assume amount to £*y* for the year) on account of board and/or lodging supplied, then as £*x* is the amount of the salary that is the amount assessable, and the employee has no right to deduct £*y* from it. The leading case on the question, Cordy *v.* Gordon, was decided in 1925.

Army Service: Expenses

D. P. is a commissioned officer in the Army Dental Corps. Can he deduct the cost of professional instruments or books?

*** No; such expenses are not regarded as "incurred wholly, exclusively, and necessarily in the performance of the duties." The courts have drawn a distinction between expenses incurred in the performance of duties and those incurred to put the individual into a position to perform them.

Double Assessment

"M.B., Ch.B." has received two notices of assessment (for £200 and £128 income respectively), and has not received a satisfactory explanation from the local inspector of taxes. Apparently the tax on both is being deducted from his salary.

*** It is possible that the two assessments relate to different financial years—i.e., for 1940-1 and 1941-2—though the amounts do not seem to be reconcilable with the facts given by "M.B., Ch.B." We advise him to write again to the inspector of taxes—or preferably to call at his office—and ask for a full explanation. If it is not forthcoming he might well write to the Board of Inland Revenue, Somerset House, W.C.2, asking that the matter be made clear to him.

LETTERS, NOTES, ETC.

Iodine Ointment for Epidermophytosis

Dr. J. MONTGOMERY ANDERSON (London) writes: A delayed reaction to Captain B. G. Shapiro's memorandum (December 20, p. 877) and Dr. H. W. Barber's letter (January 3, p. 24) is stimulated by having seen the results of treatment of this condition by "iodex." Some months ago, in the course of a general overhaul, a patient complained of irritation between the toes which had not been relieved by various treatments. The macerated skin between the toes told the story, and it was suggested that the feet should be thoroughly washed twice a day, socks changed daily, and iodex ointment well rubbed into the affected area and around it twice daily. When the patient was seen two days ago he had forgotten his skin irritation and the toes were normal. Ung. iodi (iodex) has always been a standby in this condition for some years now, and the results have always been very good indeed.

Function of Discharge in Coryza

Dr. J. F. PAYAN (Barkingside, Essex) writes: Surely the treatment of all inflammatory conditions of mucous or modified mucous membranes is to enhance Nature's attempt at getting rid of bacterial infection by the production of increased drainage of sero-purulent discharges. It would be considered the height of folly to attempt the suppression, say, of a gonococcal urethral discharge, and do we not promote increased drainage by glycerin, etc., in cases of endometritis and cervicitis? Why, then, reverse this form of treatment in the case of the common cold? From a glance at modern advertisements for the "cure" of colds the striking fact is that all such cures attempt at "drying up" the normal rhinorrhoea, which is Nature's way of curing the complaint. Bearing this in mind, would it not be reasonable to look upon sinusitis and even otitis media as avoidable complications in at least a certain proportion of cases?

Health Problems of China in Wartime

China is the most remarkable country in the world of to-day. It clung to its age-old customs up to the first decade of this century. But now the giant has awakened, and in many instances has outstripped our modern Western civilization. From the monthly magazine *China at War* (copies of which, we are told, are to be found "in all leading libraries in the world"), among a number of interesting and informative articles we would especially note an account of antimalarial control on the Burma Road, where research and clinical treatment of malaria have made much progress. The problem of endemic goitre in Yunnan has been met by iodization of domestic salt—one of the many policies of the National Health Administration, an active Ministry which has established health stations throughout the country. One of its chief duties is to conserve man-power and to prevent undesirable health conditions in the rear from affecting the defenders at the front. Particular emphasis is laid on the prevention of epidemic diseases, and the lowering of body resistance by malnutrition has been largely met by the provision of soya-bean milk and soya biscuits, which are an important factor in yielding food of full nutritional value. In another article, "Kweichow's Plan for Public Health," the establishment of a province-wide network of health organizations is quoted as the outstanding feature of a five-year plan for the promotion of public health. There are five main epidemic-prevention districts, each in charge of an anti-epidemic corps. *China at War* is published by the China Information Publishing Company in the bomb-ridden capital of Chungking, and was printed in Hong Kong.

Deceiving a Doctor

The following extraordinary example of misplaced ingenuity is quoted from an official German publication by the Spanish journal *Medicina Española* (**4**, p. xii, September, 1941). Two unmarried German sisters, who were both pregnant, each visited on separate occasions a German woman doctor after having performed a profuse vaginal irrigation with hog's blood, assuring the credulous doctor that they had had a spontaneous abortion which was followed by persistent haemorrhage. The doctor carried out an evacuation of the uterus in each case, with the intention of completing the unverified abortion. A tribunal absolved the doctor from the charge of criminal abortion, but considered her culpable in that she had unintentionally performed two abortions without having taken the precaution to check the patients' stories. How the deception came to light is not stated.

From G.P. to Medical Official

Dr. ARTHUR E. LARKING writes: The death of Alfred Linnell brings back old memories of the days when he was a rural practitioner at Paulerspury, near Northampton, and I was in a similar practice at Buckingham. We often used to visit each other. He was a good companion, very sociable, and gifted with great common sense. He came of a well-known yeoman family, and was very fond of country pursuits. We had been at Guy's together, where we went through the hospital course in an uneventful way. He would probably have stayed at Paulerspury for the rest of his life had it not been for the British Medical Association. When the new constitution came into being, and especially when the National Insurance Bill was brought in, his chance came. His colleagues at once recognized that he was a man who took sensible points of view and could express them clearly. He was elected the representative of the Division and attended the Annual Meetings. Here he became acquainted with prominent members of the Association, and also with others connected with the administration of the National Insurance Acts. These soon recognized his ability and tact, and in due course he became a Regional Medical Officer. He lived to the age of 80 after some years of retirement. His career is an example of a man who found his *forte* rather late in life, for he was in middle age when he became a Regional Medical Officer. Another friend of mine had a similar experience: he rose from being a general practitioner with a small practice at Yarmouth to be one of the most well-known men in the profession. I refer to Sir James Smith Whitaker. When the medical profession was very dissatisfied with the way its interests were being looked after, when the B.M.A. was patronized only by the upper stratum and its activities were confined solely to Annual Meetings and discussion of purely professional matters and scientific subjects, it became obvious that a drastic reorganization was necessary or a new body must be started. Luckily the decision was made to reorganize the B.M.A., and a meeting was called to consider the matter. All those who attended were men who had advocated professional union, but before then no serious attempt had been made to bring it about. The question was how it should be brought about. Few had any scheme to put before the meeting. Then the general practitioner from Yarmouth had his chance. He had a fully worked out scheme in his pocket, and was at once looked upon as a genius. The scheme was adopted, Whitaker was made Medical Secretary of the reorganized B.M.A., and later became a Commissioner in the National Insurance Government Department. Here is an example of two men who, owing to their special abilities, rose from being general practitioners to prominent positions.

Corrigenda

In the letter by Dr. V. Aronson and Mr. A. H. Harvie on "Ether Convulsions" in the *Journal* of January 17 (p. 92) the word "include" was printed instead of "exclude." The sentence should run: "If we can exclude the varying degrees of toxicity, the most important common factor would appear to be dehydration."

The year in which the late Sir Frederic Still read his classical paper "On a Form of Chronic Joint Disease in Children" before the Royal Medical and Chirurgical Society was 1896, and not 1906 as stated in "Medical News" of January 24.